

Test Specifications Fuel Injection Pumps and Governors

40

1A WPP 001/4 KHD 3,0 a
3. Edition

En

PES 3 A 90 D 410/3 RS 2610

RSV 325-1150 A 8 B 2157 L

supersedes 6.83

Komb.-Nr. 0 400 863 006

A 8 C 2157 L

company KHD

- 3 - 2 je $120^\circ \pm 0,5^\circ (+ 0,75^\circ)$

engine F 3 L 913G

37 kW (50 PS)

/ 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,5-2,6

Port closing at prestroke

(2,45-2,65)

mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,8+0,1	6,9 - 7,0	0,3(0,45)			
325	8,9-9,1	1,6 - 2,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 17	325	8,5	1150	10,8+0,1
	x =	6,75					100	min. 19,5	500	11,1+0,1
							325	8,9-9,1	1055	10,9+0,2
							470-530	= 2,0		
ca. 52	9,8	1190-1200								
2a	4,0	1270-1300								
	1450	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery		5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)				Idle					
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9			
1150	68,5-69,5 (66,5-71,5)	1190-1200*	800	60,0-62,0 (58,0-64,0)	100	13,0-13,6	-	-			

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.84

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 g 1

4. Edition

En

PES3A85D410/3 RS 2642 RSV325-1150A8B2102-1L
Kombi-Mot. 0 400 863 007
1 - 3 - 2 je 120° ± 0,5 (± 0,75)

supersedes 2.84

company KHD

engine F3L 913

42 kW (57 PS)₁
2300 min₁

Tractor D 6007-S23

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,45-2,65) mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1150	11,5+0,1	7,1-7,4	0,3 (0,45)			
325	8,9-9,1	1,7-2,3	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 20	325	8,5	1150	11,5+0,1
	X=						100	min. 19,0	700	11,8+0,1
							325	8,9-0,1	1075	11,6+0,3
							485-545	2,0		
⑤ ca. 54	10,2	1190-1200								
	4,0	1265-1295								
	1350	0,3-1,7								

** Set speed regulation before torque control.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1150	70,5-71,5 (68,5-73,5)	1190-1200	700	65,0-67,0 (63,0-69,0)	100	133,5-143,5	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 d

7. Edition

PE 8 MW 100/720 LS 1010

RQV 300-1150 MW 23

Komb. 0 403 548 002

supersede 1.82

company KHD

engine BF 8 L 413 F
212 kW (288 PS)
/ 2100 minbzw. 206 kW
/ 2300 min⁻¹
(Maxidyne)1 - 8 - 7 - 2 - 6 - 5 - 4 - 3
0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 $\pm 0,5$ (0,75)⁰

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20
(3,05-3,25) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,5+0,	13,6-13,8	0,35(0,6)			
300	6,3-6,5	1,25-1,65	0,35(0,55)			
500	10,2+0,					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180 1400	15,2-17,8 0 : 1,0				ca. 18,5	100 300 430-490 = 2,0	min. 7,8 6,3-6,5	300 500 1200	1,4 3,2-3,8 8,5-8,6
ca. 63	9,2 4,0	1160-1170 1235-1265								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,8 bar 136,0-138,0 (134,0-140,0)	1160-1170*	LDA 500	0 bar 94,0-96,0 (92,0-98,0)	100	136,5-146,5 (133,5-149,5)	700 780 1050 1150	12,5+0, 12,5+0, 11,2+0,2 10,2+0,3
					100-230 (80-250)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.83

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

KHD 12,7 d -2-

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
LS 1010 + MW 23	0,8	0,24	12,5 - 12,6
		0,38	10,5 - 10,6
		0	11,8 - 11,9
			10,2 - 10,3

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 c

4. Edition

En

PE 8 MW 100/720 LS 1010
RQV 900-1250 MW 31
Komb. 0 403 548 003

supersede 9.82

company: KHD

engine: BF 8 L 413 F
235 kW (320 PS)
2500 min

Testoil-SU 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20
(3,05-3,25) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,2 ^{+0,1}	13,0-13,2	0,35(0,6)			
300	6,4-6,6	1,25- 1,65	0,35(0,55)			
850	12,7 ^{+0,1}		0,5 (0,7)			
500	9,7 ^{+0,1}		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250 1500	15,2-17,8 0 - 1,0				ca. 15	100 300 670-730=2,0	min. 8,4 6,8-6,9		
ca. 65	11,2 4,0	1290-1300 1375-1405				380-440 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational speed ②b limitation intermediate speed	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑧		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,9 bar 130,0-132,0 (128,0-134,0)	1290-1300*	LDA 850	0,9 bar 130,5-134,5 (128,5-136,5)	100	136,5-146,5 (133,5-149,5)	850 950 1200	12,7 ^{+0,1} 12,4 ^{+0,2} 12,2 ^{+0,1}
			LDA 500	0 bar 84,5- 86,5 (82,5- 88,5)	300	12,5-16,5 (9,0-18,0)	1250	12,2 ^{+0,1}

Checking values in brackets

* 1 mm less control rod travel than col. 2

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11.82

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 XXXXX
 XXXXXXX

Pump/governor	Setting	Measurement	Control rod travel diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
LS 1010 + MW 31	0,9 bar	0,4 0,3	12,7 - 12,8 11,9 - 12,0 10,4 - 10,6

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 12,7c1

1. Edition

En

PE 8 MW 100/720 LS 1010
RQ 300/1250 MW 32
O 403 548 004

supersedes -
company KHD
engine BF 8 L 413 F
235 kW (320 PS)

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3
0 -45 -90 -135-180-225-270-315 \pm 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,10-3,20}{(3,05-3,25)}$ mm (from BDC) RW 9,0-12,0

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,2+0,1	13,0 - 13,2	0,35(0,6)			
300	6,4-6,6	1,25 - 1,65	0,35(0,55)			
850	12,7+0,1		0,5 (0,7)			
500	9,7+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6		Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10		Control rod travel mm 12	
600	19,2-20,8	60	20,0	11,2	1295-1310	300	6,5	100	8,1	850	12,7+0,1
1500	0 - 1,0	VH = 46°	4,0	4,0	1345-1375			300	6,4-6,6	950	12,4+0,2
								375-415 = 2,0		1200	12,2+0,1
										1250	12,2+0,1

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1295 - 1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes / mm 7	Control rod travel mm
LDA	0,7 bar			LDA	0,7 bar	100	136,5-146,5
1250	130,0-132,0 (128,0-134,0)			850	130,5-134,5 (128,5-136,5)		(133,5-149,5)
				LDA	0 bar		
				500	84,5-86,5 (82,5-88,5)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
Ppe.LS1010 RQ..MW32	0,7 bar	0,3 0,23	12,7 - 12,8 11,9 - 12,0 10,4 - 10,6

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 1g 9
1. Edition

En

PES 6 MW 100/720 RS 1013

RSV 325...1100 MW 8/310

Komb. Nr. 0 403 476 010

supersedes 5.81
company KHD
engine BF 6 L 413 FR
tractor DX 230
147 kW / 2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10 - 3,20 mm (from BDC) RW 9,0 - 12,0 mm
(3.05 - 3,25)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,8 ^{+0,1}	10,6 - 10,8	0,35(0,6)			
325	5,6-5,8	1,25- 1,65	0,35(0,55)			
900	12,4+0,1		0,5 (0,7)			
500	10,6+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min 10 11	
	Control rod travel mm 2	Control rod travel mm rev/min 3								
loose	800	0,3-1,0				ca. 18	325	5,2	1100	11,8-11,9
ca. 50 2a							100	min. 19	900	12,4-12,5
							325	5,6-5,8		
							550-610	2,0		
	1140-1150 = 10,8									
	1155-1185 = 4,0									
	1360 = 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		6 Rotational-speed limit Note: changed to 1 rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery 5 rev/min 6		4a Idle stop rev/min 8	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		Control rod travel mm 9
LDA 1100	0,55 bar 106,0-108,0 (104,0-110,0)	1140-1150*		LDA 900	0,55 bar 114,5-118,5 (112,5-120,5)	100	min. 120	325	5,7
				LDA 500	0 bar 82,5-84,5 (80,5-86,5)	325	12,5-16,5 (10,0-19,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1013 + MW 8/310		0,4	11,9 - 12,0
		0,55	11,1 - 11,2

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4
3. Edition

KHD 9,6g

40

En

Testoil ISO 4113

PE 6 MW 100/720 LS 1017 RO 300/1250 MW 26

0 403 546 003

1 - 6 - 5 - 4 - 3 - 2

0 -75 -120-195-240-315 $\pm 0,50$ (0,75)
 supersedes 11.82
 company KHD
 engine F6L413FX
 150 kW (205 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke (3,05-3,25) mm (from BDC) $RW = 9,0 - 12$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,9+0,1	11,1-11,3	0,5(0,6)			
350	8,2-8,4	1,25-1,65	0,35(0,55)			
700	12,7+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	11,6	1295-1310	300	8,3	100	min. 9,9	700	12,7-12,8
				4,0	1345-1375			350	8,2-8,4	850	12,4-12,5
1450	0,0-1,0							380-440 = 2,0		1100	11,9-12,0

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1250	111,0-113,0 (109,0-115,0)		700	109,5-113,5 (107,5-115,5)	100	126,5-136,5 (123,5-139,5)
					350	12,5-16,5 (10,0-19,0)
					100-270	(80-300)

Checking values in brackets

1.84

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 d

1. Edition

En

PE8 P120 A920/5 RS 293

RZU 750 P 1/9 R

superseded by

company KHD

BA 16 M 816

engine

Komb.-Nr. 0 401 948 029

1-6- 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1- 5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each culet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	750 758 800	1,0-14,0 1,0- 1,5 1,0	-	-	-	-	-	-	-	-
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known! Carry out adjustment on engine		-	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Test Specifications Fuel Injection Pumps (1A) and Governors

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WPP 001/4 KHD 40,5 d 3

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RZU 750 P 1/14 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 948 034

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC) = RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5-22,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm/rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	750	14,0	-	-	-	-	-	-		
	770	4,8-8,3								
	800	1,0-1,5								
	840	1,0								
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes			4	5	6	7	8	9
1	2								
Not known! Carry out adjustment on engine						100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

A13

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6.83

A13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a 3

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RS 250/1000 P 1/422 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 - 75-90 -120-210-225-315-345 ° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes

KHD

company BA 16 M 816

engine Komb.-Nr. 0 401 878 096

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9 \pm 0,1	31,0-31,4 (30,7-31,7)	0,5 (0,9)			
250	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 x = 5,0	-	-	-		250	6,4	1000	14,9-15,0
							390-450	=2,0	420	16,2-16,8
									550	14,9-15,0
VHca.53 F112x. 2a	13,9	1040-1050				150-200				
	4,0	1105-1135								
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 °C (104 F)		6 Rotational- speed limit Note changed to 1 rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known! Carry out adjustment on engine		1040-1050*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 d 1

1. Edition

En

PE8P120A920/5 RS 293

RZU 900 P 2/11 R

superseded by

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 948 030

1-6 - 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC) = RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1- 5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm/rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0- 9,0								
	920	1,0- 4,0								
2a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40 C (104 F)		Note changed to				Idle			
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
Not known!		-	-	-	100	19,5-21,0	-	-	
Carry out adjustment on engine						mm RW			

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

A15

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A15

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 KHD 40,5 d 2

1. Edition

En

PE8P120A920/5 RS 293 RZU 900 P2/12R

supersedes -

company KHD

engine BA 16 M 816

1-6 - 4 -5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Komb.-Nr. 0 401 948 032

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC) = RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
	930	4,0-8,4								
(2a)	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop		(6) Rotational speed limit		(3a) Fuel delivery characteristics		Starting fuel delivery (5)		(4a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to)				Idle			
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
Not known! Carry out adjustment on engine						100	19,5-21,0	-	-
							mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

A16

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A16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a 1

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-600 P8A 322 R

superseded

company KHD

engine BA 16 M 816

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Komb.-Nr. 0 401 878 099

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$
(1,95-2,15) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
600	4,9+0,1	29,0-29,4 (28,7-29,7)	0,5(0,9)			
300	5,9-6,1	2,1-2,7	0,8(1,2)			

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 30	300	5,5	600	14,9-15,0
	x = 4,0						300	5,9-6,1	220	16,2-16,8
							310-370	= 2,0	350	14,9-15,0
ca. 65	13,9	640-650								
2a	4,0	660-690								
	825	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to 1 rev/min	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
Not known! Carry out adjustment on engine			640-650*			100	19,5-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

5.83

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A17

A17

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a 2

1. Edition

En

PE 3 P 120 A 920/5 RS 293 RSUV 300-750 P 9 A 322

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 -75 -90 -120-210-225-315-345° $\pm 0.5^\circ$ ($\pm 0.75^\circ$)

supersees

company KHD

BA 16 H 816

engine

Komb.-Nr. 0 401 878 083

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
750	14,9+0,1	29,6-30,0 (29,3-30,3)	0,5 (0,9)			
300	6,1-6,3	2,2-2,6	0,8 (1,2)			
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 x = 4,0	-	-	-	ca. 26	300	5,7	750	14,9-15,0
							300	6,1-6,3	280	16,2-16,8
							325-385	=2,0	400	14,9-15,0
ca. 62	13,9	790-800								
2a	4,0	820-850								
	985	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	3		4	5	6	7	8	9
2									
Not known! Carry out adjustment on engine		790-800*				100	19,5-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 5

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 P 0 A 323 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 084

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC) = RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm/rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030	10,8					50	19,0-21,0	430	0
	1055	6,0					300	7,7-8,3	340	1,2-1,8
②a	1030	10,0-12,0	with auxiliary spring				350	4,4-6,0		
	1055	3,8-6,0					500	0 -1,0		
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to) rev/min				Idle			
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9	
1	2	3	4	5	6	7	8	9	
		1010-1020*	-	-	100	19,5-21,0 mm RW	-	-	
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

A19

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 3

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 P 0 A 343 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 092

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm/rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030	10,8					50	19,0-21,0	430	0
	1055	6,0					300	7,7-8,3	340	1,2-1,8
2a	1030	10,0-12,0	with auxiliary spring				350	4,4-6,0		
	1055	3,8-6,0					500	0 -1,0		
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40 C (104 F)		Note changed to 1 rev/min							
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9	
1	2								
Not known! Carry out adjustment on engine		1010-1020*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

A20

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A20

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 4

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 POA 344 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 - 75- 90-120-210-225-315-345⁰ $\pm 0,5^0$ ($\pm 0,75^0$)

supersede

company

engine

Komb.-Nr. 0 401 878 093

KHD

BA 16 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC) RW 9,0 - 12,0 mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5 - 21,1	0,8			
600	6,0-6,2	4,1 - 5,3				
600	15,0 \pm 0,1	28,6 - 31,0				
200	6,0-6,2	1,0 - 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1000 1030 1055	16,0 10,8 6,0	without auxiliary spring			ca. 18	300	8,0	980	0
②a	1030 1055 1200	10,0-12,0 3,8-6,0 0,3-1,0					50 300 350 500	19,0-21,0 7,7-8,3 4,4-6,0 0 -1,0	430 340	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to 1 rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5		rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known! Carry out adjustment on engine		1010-1020*	-	-		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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A21

A21

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 g

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-1000 P 0 A 343 R

1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes

KHD

company

BA 12 M 816

Kombi-Nr. 0 401 870 054

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1
(1,95-2,15)

mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0 $\pm 0,1$	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 $\pm 0,1$	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030	10,8					50	19,0-21,0	430	0
	1055	6,0					300	7,7-8,3	340	1,2-1,8
2a	1030	10,0-12,0	with auxiliary spring				350	4,4-6,0		
	1055	3,8-6,0					500	0-1,0		
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to		Note		Note		Note	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
		1010-1020*	-	-	100	19,5-21,0 mm RW	-	-	
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

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A22

A22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 g 1

En

1. Edition

PE 12 P 120 A 920/5 RS 294 RSUV 300-1000 P O A 344 R

1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 055

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BD6) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
500	12,0 \pm 0,1	20,5-21,1	0,8			
500	6,0-6,2	4,1-5,3				
500	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030	10,8					50	19,0-21,0	430	0
	1055	6,0					300	7,7-8,3	340	1,2-1,8
2a	1030	10,0-12,0	with auxiliary spring				350	4,4-6,0		
	1055	3,8-6,0					500	0-1,0		
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
		1010-1020*	-	-	100	19,5-21,0 mm RW	-	-	
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a

3. Edition

En

PE8 P 120 A 920/5 RS 293

RSUV 300-750 P9A345R

supersedes 3.78

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 094

1-6 - 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prest. (2,0-2,1 mm (from BDC) = RW 9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1- 5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	750 770 800	16,0 12,5 6,2	without auxiliary spring			ca. 31	300	8,0	730	0
	785 800 880	7,4-10,4 4,8- 7,8 0,3- 1,0					50 300 350 400	19,0-21,0 7,7-8,3 1,4-4,2 0 -1,0	400 320	0 1,2-1,8
2a			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)		rev/min		Idle		rev/min	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
		760-770*	-	-	100	19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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A24

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a 4

1. Edition

En

PE 8 P120 A920/5 RS293

RSUV 300-750 P9 A 346 R

supersedes

company KHD

engine BA16M816

Komb.-Nr. 0 401 878 095

1-6 - 4 - 5 - 8 - 3 - 2 - 7

0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,1	4,1- 5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 68	750 770 800	16,0 12,5 6,2	without auxiliary spring			ca. 31°	300	8,0	730	0
	785 800 880	7,4-10,4 4,8-7,8 0,3-1,0					50 300 350 400	19,0-21,0 7,7- 8,3 1,4-4,2 0 -1,0	400 320	0 1,2-1,8
2a			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40 C. (104 F) rev/min 1	cm ³ /1000 strokes 2	Note changed to rev/min 3	4	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known! Carry out adjustment on engine		760-770*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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B1

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 40,5b1

1. Edition

En

Testoil-ISO 4113

PE8P120A920/5RS293

RSUV300-1000 A348R

supersedes

company KHD

engine BA16M816

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7 $\pm 0,50$
0 - 75-90-120-210-225-315-345 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15 mm (from BDC))

Zyl. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	10,5-10,6	18,1 - 18,5	0,5(0,9)			
300	6,7-6,9	2,8 - 3,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800 0,3-1,0					ca. 25	300	6,8		
ca. 68	1040-1050=9,5 1060-1090 =4,0 1220=0,3-1,7						300	7,2-7,4		
2a							340-400	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40 C (104 F)		Note changed to							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1000	181,0 - 185,0 (178,0 - 188,0)	1040-1050*						300	7,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

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1.80

B2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 40,5c1

2. Edition
En
Testoil-ISO 4113

PE 8 P 120 A 920/5 RS 293

RSUV 300-750 P 9 A 350

superseded 2.80

company

engine KHD

BA 16 M 816

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 -75 -90 -120-210-225-315-345- $\pm 0,50(0,75)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,00-2,10}{(1,95-2,15)}$

mm (from BDC)

Port closing mark cyl. 1

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	10,8-10,9	16,5 - 16,9	0,5(0,9)			
300	6,3-6,5	2,2 - 2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 26	300	5,9	750	10,8-10,9
	X =	4,0					300	6,3-6,5	400	10,8-10,9
									325	11,7-12,3
⑤ ca. 61	790-800=9,8									
	810-840=4,0									
	975=0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
750	165,0-169,0 (162,0-172,0)	790-800*			100	19,5-21,0 mm RW	300	6,4	

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.80

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 c 2

2. Edition

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 P 0 A 352

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 -75 -90 -120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

En

superseded 8.80

company KHD

BA 16 M 816

engine Komb.-Nr. 0 401 878 104

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC) = RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
750	14,9 \pm 0,1	29,5-29,9 (29,2-30,2)	0,5 (0,9)			
300	6,0-6,2	2,0-2,6	0,8 (1,2)			
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 x = 1,75	-	-	-	ca. 21	300	5,6	1000	14,9-15,0
							300	6,0-6,2	280	16,2-16,8
							325-385	2,0	400	14,9-15,0
ca. 65	13,9	1040-1050								
2a	4,0	1065-1095								
	1190	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
LDA	0,7 bar	1040-1050*	-	-	-	100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Bench 4110

B4

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D. Adjustment Test for Manifold Pressure Compensator

KHD 40,5 c 2

-2-

Test at n 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PE H P..RS 293 +RSUV..POA 352	Carry out adjustment on engine			

Notes
 rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 i

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 750 P1/9 R
1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes
KHD
company
BA 12 M 816
engine
Komb.-Nr. 0 401 940 024

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 mm (from BDCF RW 9,0 - 12,0 mm)
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	750 758 800	1,0-14,0 1,0-1,5 1,5	-	-	-	-	-	-	-	-
②a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Not known! Carry out adjustment on engine		-	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testspec 10-13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 i 3

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 750 P1/14 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° ± 0,5° (± 0,75°)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 940 027

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Full	750	14,0	-	-	-	-	-	-	-	-
	770	4,8-8,3								
	800	1,0-1,5								
2a	840	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to 1 rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
						100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 d
1. Edition

En

PE 12 P 120 A 920 RS 294

RS 250/1000 P1/422 R

supersede
company KHD

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

engine BA 12 M 816

Komb.-Nr. 0 401 870 060

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC= RW 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 X = 5,0	-	-	-		250	6,4	1000	14,9-15,0
							250	6,3-6,5	420	16,2-16,8
							390-450	= 2,0	550	14,9-15,0
ca. 58 2a	13,9 4,0 1200	1040-1050 1105-1135 0,3-1,7				150-200				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
		1040-1050*	-		-	100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 i 1

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 900 P2/11 R
1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes -
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 940 025

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC) = RW $9,0 - 12,0$ mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Control-lever deflection in degrees rev/min			3 Torque control rev/min	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	7	8	9	10	11
Full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0-9,0								
	920	1,0-4,0								
2a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to 1 rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop rev/min 8	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		Control rod travel mm 9	
Not known! Carry out adjustment on engine		-	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test-Bench ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 i 2

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 900 P2/12 R
1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 940 026

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BD6) RW $9,0 - 12,0$ mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
	930	4,0-8,4								
2a	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	5	cm ³ /1000 strokes	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Not known! Carry out adjustment on engine		-	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 e

1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-600 P 8 A 322 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 061

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	14,9 \pm 0,1	29,6-30,0	0,5(0,8)			
300	6,3-6,5	2,2-2,8	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 30	300	5,9	600	14,9-15,0
	x =	4,0					300	6,3-6,5	220	16,2-16,8
							310-370	=2,0	350	14,9-15,0
ca. 65	13,9	640-650								
2a	4,0	660-690								
	825	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2			4	5	6	7	8	9
		640-650*	-	-	-	100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

Test ISO 4113

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B11

B44

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 30,4 h

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-600 P 8 A 322 R

supersedes

company KHD

engine BA 12 M 816

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

Komb.-Nr. 0 401 870 059

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	14,9+0,1	29,6-30,0	0,5(0,8)			
300	6,3-6,5	2,2-2,8	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5		7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.30	300	5,9	600	14,9-15,0
	X = 4,0						300	6,3-6,5	220	16,2-16,8
							310-370	= 2,0	350	14,9-15,0
ca.65	13,9	640-650								
2a	4,0	660-690								
	825	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
		640-650 *	-	-	-	100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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B12

6A2

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 KHD 30,4 b

1. Edition

En

PE12 P120 A 920 RS 294 RSUV 300-750 P9 A 322 R
1-10-5-7-2-11-6-8-3-12-4-9 je $30^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 062

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 26	300	5,9	750	14,9-15,0
	X = 4,0						300	6,3-6,5	280	16,2-16,8
							325-385	= 2,0	400	14,9-15,0
ca. 62	13,9	790-800								
②a	4,0	820-850								
	985	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
		790-800*	-	-	-	100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Testo 150 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 a

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-750 P 9 A 322 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -
company KHD
BA 12 M 816
engine Romb.-Nr. 0 401 870 049

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,5(0,9)			
200	6,0-6,2	1,2-2,0	0,65(0,95)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 31	300	7,5	750	12,0-12,1
	x = 4,0						300	7,9-8,1	450	12,0-12,1
							315-375	2,0	325	13,2-13,8
ca. 68	11,0	770-780								
2a	4,0	790-820								
	900	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min									
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min		Control rod travel mm	
1	2	3		4	5	6	7	8		9	
Not known! Carry out adjustment on engine		770-780*		-	-	100	19,5-21,0 mm RW	-		-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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6.83

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 f 2

1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-1000 POA 323 R

supersedes

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 063

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC) $(1,95-2,15)$ mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in 

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees rev/min Control rod travel mm			3 Torque control rev/min Control rod travel mm	
2	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	7	8	9	10	11
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030	10,8					50	19,0-21,0	430	0
	1055	6,0					300	7,7-8,3	340	1,2-1,8
2a	1030	10,0-12,0	with auxiliary spring				350	4,4-6,0		
	1055	3,8-6,0					500	0 - 1,0		
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 C (104 F) rev/min 1		6 Rotational speed limit Note changed to rev/min 3	3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6		5 Idle stop rev/min Control rod travel mm 8	4a Control rod travel mm 9
2	cm ³ /1000 strokes							
		1010-1020*	-	-	100	19,5-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Test ISO 4113

B15

6A5

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 c

1. Edition

En

PE12 P120 A920/5 RS 294

RSU 300/1000 POA 331 R

supersedes -

company KHD

BA 12 M 816

engine
Kombin.-Nr. 0 401 870 058

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) =RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9±0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-		300	6,4	1000	14,9-15,0
	X=						300	6,3-6,5	360	16,2-16,8
							360-400	= 2,0	550	14,9-15,0
②a	13,9	1040-1050								
	4,0	1130-1160								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to .)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
		1040-1050*	-		-	100	19,5-21,0	-	-
Not known! Carry out adjustment on engine							mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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B16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 f 3

1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-1000 POA 343 R

supersedes -

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 064

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC) = RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0±0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0±0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 56	1000 16,0 1030 10,8 1055 6,0		without auxiliary spring			ca. 18	300 8,0		980 0	
2a	1030 10,0-12,0 1055 3,8-6,0 1200 0,3-1,0						50 19,0-21,0 300 7,7-8,3 350 4,4-6,0 500 0-1,0		430 0 340 1,2-1,8	
			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Not known! Carry out adjustment on engine		1010-1020*	-	-		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 30,4 F 4
1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-1000 PO A 344 R

supersedes

company KHD

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

engine BA 12 M 816
Komb.-Nr. 0 401 870 065

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC ± RW 9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1000	16,0	without auxiliary spring			ca. 18	300	8,0	980	0
	1030	10,8					50	19,0-21,0	430	0
	1055	6,0					300	7,7-8,3	340	1,2-1,8
2a	1030	10,0-12,0	with auxiliary spring				350	4,4-6,0		
	1055	3,8-6,0					500	0 - 1,0		
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 °C (104 °F)	Note	changed to	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Not known! Carry out adjustment on engine		1010-1020	* -	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Technische Zeichnung 4113

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 a 1

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSUV 300-750 P 9 A 345 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 056

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,0-2,1 \\ (1,95-2,15) \end{matrix}$ mm (from BDCF RW 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 68	750 770 800	16,0 12,5 6,2	without auxiliary spring			ca. 31	300	8,0	730	0
2a	785 800 880	7,4-10,4 4,8-7,8 0,3-1,0					50 300 350 400	19,0-21,0 7,7-8,3 1,4-4,2 0-1,0	400 320	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40 C (104 F)		Note changed to rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
Not known! Carry out adjustment on engine		760-780*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 30,4 b 2
1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-750 P 9 A 346 R

1-10-5-7-2-11-6-8-3-12-4-9 je 30 ° ± 0,5 ° (± 0,75 °)

supersedes -
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 066

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.68	750 770 800	16,0 12,5 6,2	without auxiliary spring			ca.31	300 50 300 350 400	8,0 19,0-21,0 7,7-8,3 1,4-4,2 0 - 1,0	730 400 320	0 ⁵⁾ 0 1,2-1,8
2a	785 800 880	7,4-10,4 4,8-7,8 0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Not known! Carry out adjustment on engine		760-770*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 a2
i. Edition

En

PE12P120A 920/5 RS 294

RSUV 300-750P9 A 346 R

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

supersedes

KHD

company BA12 M 816

engine Komb.-Nr.0 401 870 057

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	18,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 68	750	16,0	without auxiliary spring			ca. 31	300	8,0	730	0
	770	12,5					50	19,0-21,0	400	0
	800	6,2					300	7,7-8,3	320	1,2-1,8
2a	785	7,4-10,4	with auxiliary spring				350	1,4-4,2		
	800	4,8- 7,8					400	0 -1,0		
	880	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle 5		4a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to) rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	
		760-780*	-	-	100	19,5-21,0	-	-	
Not known! Carry out adjustment on engine						mm RW			

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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Testbench 4113

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4f
1. Edition

En

PE12 P120 A920 RS 294

RSUV 300-1000 POA 348 R

supersedes
KHD

company BA 12 M 816

engine
Komb.-Nr. 0 401 870 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
300	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees rev/min 8			3 Torque control rev/min 10	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	Control rod travel mm 9			Control rod travel mm 11	
loose	800 0,3-1,0 X=1,0		-	-	-	ca. 18	300 5,9		1000 14,9-15,0	
ca. 60	13,9 1040-1050 4,0 1060-1090 1190 0,3-1,7						300 6,3-6,5 325-385 = 2,0		270 16,2-16,8 400 14,9-15,0	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		Control rod travel mm 9	
Not known! Carry out adjustment on engine		1040-1050*	-	-		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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012

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 b1

1. Edition

En

PE12P120 A 920 RS 294 RSUV 300-750 P9 A 350

1-10-5-7-2-11-6-8-3-12-4-9 je 30° ±0,5° (±0,75°)

supersedes

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 071

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
300	6,3-6,5	2,2- 2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 X = 4,0	-	-	-	ca. 26	300	5,9	-	-
ca. 62	13,9	790-800					300	6,3-6,5		
2a	4,0	820-850					330-390	= 2,0		
	985	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
Not known! Carry out adjustment on engine		790-800*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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B23

023

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 f1

1. Edition

PE12P120 A 920 RS 294

RSUV 300-1000 P 3 A 352 R

En

1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -
KHD

company

engine BA 12 M 816

Komb.-Nr. 0 401 870 068

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	14,9 \pm 0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,4-3,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 X = 1,0	-	-	-	ca. 18	300	5,9	1000	14,9-15,0
							300	6,3-6,5	270	16,2-16,8
ca. 60	13,9	1040-1050					325-385	2,0	400	14,9-15,0
2a	4,0	1060-1090								
	1220	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
Not known! Carry out adjustment on engine		1040-1050*		-		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 d

1. Edition

En

PE 6 P 120 A 420 LS 324 RZU 750 P 1/9

Komb.-Nr. 0 401 946 024

supersedes -
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Full	750	1,0-14,0	-	-	-	-	-	-	-	-
	758	1,0-1,5								
	800	1,0								
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40 °C (104 °F)		Note changed to							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
		750		-	-	100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col. 2

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C1

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WHP 001/4 KHD 15,2 d 1

1. Edition

En

PE 6 P 120 A 420 LS 324

RZU 900 P 2/11

Komb.-Nr. 0 401 946 026

supersedes
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0 - 2,1$ mm (from BDC)
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0±0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0±0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0-9,0								
	920	1,0-4,0								
2a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min				Idle			
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9	
1	2	3	4	5	6	7	8	9	
Not known! Carry out adjustment on engine		900	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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Tabelle 113

C2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 c

1. Edition

En

PE 6 P 120 A 420 LS 324

RS 250/1000 P 1/422 R

Komb.-Nr. 0 401 876 221
0 401 821 001

supersedes

company KHD

engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC)
 $(1,95-2,15)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	800	0,3-1,0	-	-	-		250	6,4	1000	14,9-15,0
	x = 5,0						260-320	= 2,0	420	16,2-16,8
VH ca. 58									550	14,9-15,0
FH voll	13,9	1040-1050				150-200				
2a	4,0	1105-1135								
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
Not known! Carry out adjustment on engine		1040-1050*	-	-	100	19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Test Bench 4113

C3

63

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 d 2

1. Edition

En

PE 6 P 120 A 420 LS 324 RZU 900 P 2/12
Komb.-Nr. 0 401 946 027

supersedes
KHD
company BA 6 M 816
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
	930	4,0-8,4								
2a	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
Not known! Carry out adjustment on engine		900		-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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TestchISO 4113

C4

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 b

1. Edition

En

PE 6 P 120 A 420 LS 324

RSV 250-1000 P7A 304 R

supersedes -

company KHD

Komb.-Nr. 0 401 876 226

engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
250	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,9	1000	14,9-15,0
	x = 5,5						250	6,3-6,5	300	16,2-16,8
							345-405	= 2,0	450	14,9-15,0
ca. 67	13,9	1040-1050								
2a	4,0	1080-1110								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2h Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to)				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known! Carry out adjustment on engine		1040-1050*	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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C5

65

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 a

1. Edition

En

PE 6 P 120 A 420 LS 324 RSUV 250-600 P8A 321 R
Komb.-Nr. 0 401 876 228

supersedes -
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC)
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	14,9+0,1	29,6-30,0	0,5 (0,9)			
250	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	775	0,3-1,0	-	-	-	ca. 26	250	5,9	600	14,9-15,0
	x = 4,0						250	6,3-6,5	270	16,2-16,8
							260-310	= 2,0	350	14,9-15,0
ca. 65	13,9	640-650								
2a	4,0	660-690								
	800	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to 1 rev/min				Idle			
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
		640-650*		-	-	100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 e

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 750 P 1/9

1-4-7-6-8-5-2-3 je 45° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
Komb.-Nr. 0 401 948 028

supersedes
company KHD
engine BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
600	12,0 $\pm 0,1$	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 $\pm 0,1$	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	750	1,0-14,0	-	-	-	-	-	-	-	-
	758	1,0-1,5								
	800	1,0								
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40° C (104° F)		Note changed to				Idle			
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known! Carry out adjustment on engine		750	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testo ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 b

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RS 250/1000 P1/422 R

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes KHD
company BA 8 M 816
engine
Komb.-Nr. 0 401 878 097

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke (1,95-2,15) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Control lever deflection in degrees 7		Lower rated speed rev/min 8		3 Torque control rev/min 10		Control rod travel mm 11
loose VHca.58 FH full 2a	Control rod travel mm 2	Control rod travel mm rev/min 3						250	6,4	1000	14,9-15,0	
	x = 5,0							390-4	50=2,0	420	16,2-16,8	
	13,9	1040-1050								550	14,9-15,0	
	4,0	1105-1135										
	1200	0,3-1,7				150-200						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8		Control rod travel mm 9
not known	cm ³ /1000 strokes 2	040-1050*	-	-	-	100	19,5-21,0	-	-	-
Adjust according to		the engine records.					mm RW			

Checking values in brackets

* 1 mm less control rod travel than col. 2
6,83

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C8

C8

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 e 1

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 900 P 2/11

1-4-7-6-8-5-2-3 je 45° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
Komb.-Nr. 0 401 948 031

supersedes

company KHD

engine BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 mm (from BDC)
(1,95-2,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
600	12,0 \pm 0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 \pm 0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0-9,0								
	920	1,0-4,0								
2a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
Not known! Carry out adjustment on engine			900	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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C9

C9

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 e 2

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 900 P 2/12

1-4-7-6-8-5-2-3 je 45° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)
Komb.-Nr. 0 401 948 033

supersedes KHD
company BA 8 M 816
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0 $\pm 0,1$	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0 $\pm 0,1$	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
	920	4,0-8,4								
②a	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Not known! Carry out adjustment on engine		900	-	-	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 d

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSV 250-1000 P 7 A 304

Komb.-Nr. 0 401 878 089

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes -

company KHD

engine BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever t	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 18	250	5,9	1000	14,9-15,0
	$\chi = 4,25$						250	6,3-6,5	300	16,2-16,8
							340-400	= 2,0	450	14,9-15,0
ca. 60	13,9	1040-1050								
2a	4,0	1060-1090								
	1220	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
Not known! Carry out adjustment on engine		1040-1050	*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 c

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSUV 250-800 P 10 A 318 R

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,50$ ($\pm 0,75^\circ$)

supersede

company KHD

engine BA 8 M 816

Komb.-Nr. 0 401 878 091

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,4(0,8)			
250	6,3-6,5	2,2-2,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	250	5,9	800	14,9-15,0
	$\chi = 4,0$						250	6,3-6,5	300	16,2-16,8
							280-340	= 2,0	450	14,9-15,0
ca. 56	13,9	840-850								
2a	4,0	870-900								
	1025	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to)				Idle			
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
		840-850 *	-	-	100	19,5-21,0 mm RW	-	-	
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

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C12

C 12

Test Specifications Fuel Injection Pumps (1A) and Governors

40
WPP 001/4 KHD 20,2 a

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSUV 250-600 P 8 A 321 R
1-4-7-6-8-5-2-3 je 45° ± 0,50 (± 0,75°)
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes -
company KHD
engine BA 8 M 816
Komb.-Nr. 0 401 878 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	14,9±0,1	28,7-29,1 (28,4-29,4)	0,5(0,9)			
250	6,0-6,2	1,6-2,3 (1,3-2,6)	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
2	Control rod travel mm	Control rod travel mm rev/min				rev/min	Control rod travel mm		rev/min	
loose	775	0,3-1,0	-	-	-	ca.25	250	5,6	600	14,9-15,0
	X = 4,0						250	6,0-6,2	220	16,2-16,8
							260-320	= 2,0	350	14,9-15,0
ca.65	13,9	640-650								
2a	4,0	660-690								
	800	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 °C (104 °F) rev/min 1		6 Rotational speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel mm 9	
2	cm ³ /1000 strokes			5	cm ³ /1000 strokes	7	cm ³ /1000 strokes	8	
Not known! Carry out adjustment on engine		640-650 *	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Testoil-ISO 4113

C13

Test Specifications Fuel Injection Pumps and Governors

1A

40

WP 001/4 KHD 20,2 c 1

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSUV 250-800 P 10 A 347 R

supersedes -
company KHD
engine BA 8 M 816

Komb.-Nr. 0 401 878 101

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$ mm (from BDC)
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 17	250	5,9	800	14,9-15,0
	X = 3,0						250	6,3-6,5	300	16,2-16,8
							280-340	= 2,0	450	14,9-15,0
ca. 5	13,9	840-850								
2a	4,0	860-890								
	1025	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
Not known! Carry out adjustment on engine		840-850*		-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Testoil-ISO 4113

C14

C14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 e

1. Edition

En

PE 6 P 120 A 420 LS 399 RSV 250-1000 P 7 A 460
Komb.-Nr. 0 401 876 236

superseded
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 x = 5,75	-	-	-	ca. 24	250	5,9	1000	14,9-15,0
							250	6,3-6,5	300	16,2-16,8
							345-405	=2,0	450	14,9-15,0
ca. 67	13,9	1040-1050								
2a	4,0	1080-1110								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to) rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
LDA	0,7 bar	1040-1050*	-	-	-	100	19,5-21,0 mm RW	-	-
Not known! Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.83

C15

CAS

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 e

2. Edition

En

Testoil-ISO 4113

PE 12 P 110 A 920 LS 3060 RQV 300-1250 PA 479 KR

superseded 9.82

company KHD

engine: BF 12 L 413 FC

386 kW - 2500 min⁻¹

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 - 45 - 60 - 105 - 120 - 155 - 180 - 225 - 240 - 285 - 300 - 345[°] ± 0,5[°] (± 0,75[°])

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,7±0,1	14,7 - 15,1	0,4 (0,8)			
300	6,7-6,9	1,6 - 2,2	0,7 (1,0)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1270	15,2-17,8	-	-	-	ca. 13	100	min. 8,3	250	0,2-0,6
ca. 60	10,7 4,0 1550	1280-1290 1385-1415 0 - 1,0					300 350-500	6,7-6,9	580 920 1250	3,4-3,7 5,3-5,5 8,3

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,75 bar 147,0-151,0 (145,0-153,0)	1280-1290*	LDA 850	0,75 bar 122,0-126,0 (119,0-129,0)	100	140,0-160,0	1250 850 500	11,7±0,1 11,0±0,1 10,1±0,2
			LDA 500	0 bar 78,0-80,0 (74,0-84,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.83

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C16

C16

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel ⁽¹⁾ diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 P..LS 3060 + ..PA 479 KR	0,35	0,75 0 0,22	10,1 - 10,3 10,4 - 10,5 9,0 - 9,2 9,6 - 9,8

Notes

(1) When n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 19,0 d

2. Edition

En

PE 12P 110 A 920 LS 3060 RQV 300-1250 PA 576 KR

Komb.-Nr. 0 401 840 702

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12

0 - 45 - 60 - 105 - 120 - 135 - 180 - 225 - 240 - 285 - 300 - 345° ± 0,5° (±0,75°)

supersedes 9.82
KHD

company:

engine: BF 12 L 413 FC

386 kW / 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8 - 2,9
(2,75-2,95)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
1250	12,0+0,1	15,2 - 15,6	0,4(0,8)			
300	7,0-7,2	1,8 - 2,4	0,7(1,0)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1270	15,2-17,8	-	-	-	ca. 13	100	min. 8,3	250	0,3-0,6
ca. 63	11,0 4,0 1550	1290-1300 1390-1420 0 - 1,0				350-500 (3a)	300	6,7-6,9	580 920 1250	3,5-3,7 5,3-5,5 8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,85 bar 152,0-156,0 (150,0-158,0)	1290-1300*	LDA 850	0,85 bar 136,0-140,0 (133,0-143,0)	100	130,0-140,0 bei 13,0-13,2 mm RW	1250 650 500	12,0+0,1 11,2+0,2 11,0+0,2
			LDA 500	0 bar 77,0 - 79,0 (73,0 - 83,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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C18

C18

D. Adjustment Test for Manifold Pressure Compensator

KHD 19,0 d

- 2 -

Test at n 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 P.. LS 3060 + .. PA 576 KR	0,85		11,1 - 11,2
		0	9,1 - 9,2
		0,55	11,0 - 11,1
		0,29	9,4 - 9,6

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 15,8 g

3. Edition

En

PE10P110A920/5 LS 3073 RQ300/1150PA535

Komb.-Nr. 0 401 849 702

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2

0-27-72-99-144-171-216-243-288-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

superseded 1.83

company BF10L413F

engine 265kW (360 PS)₁
/ 2050 minbzw. 259 kW (352 PS)
/ 2300 min⁻¹
(Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,8-2,9) mm (from .
(2,75-2,95))

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	11,6+0,1	13,8-14,0	0,4(0,8)			
300	6,9-7,1	1,8-2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
700	19,2-20,9	700	20,0	9,7 4,0	1195-1205 1220-1250	300	7,0	100 300	min.8,5 6,9-7,1	1150 800 1020 1050	10,7-10,9 11,6-11,7 11,5-11,7 11,2-11,4
VH= max. 46°				1350	0-1,0			340-380= 2,0			

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes	Control rod travel / mm
1	2	3	4	5	6	7	
LDA 800	0,9 bar 138,0-140,0 (135,0-143,0)	-		LDA 500	0 bar 85,0-89,0 (82,0-92,0)	100	115,0-140,0

Checking values in brackets

5.83

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Test Bench 113

C20

C20

D. Adjustment Test for Manifold Pressure Compensator

Test at n **500** rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure - bar	Control rod travel- diminution difference mm (1)
PE10P..LS3073 + .. PA535	0,55	0,90 0 0,39	11,2-11,3 11,6-11,7 9,4-9,5 10,1-10,3

Notes:

(1) when n

rev/min and
gauge pressure -

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 15.8 f

4. Edition

En

PE 10 P 110 A 920/5 LS 3073 RQV 300-1150 PA 549
Komb.-Nr. 0 401 849 703
1-10-9 - 4- 3 - 6 - 5 - 8 - 7 - 2
0-27-72-99-144-171-216-288-315° ± 0,5° (± 0,75°)

supersedes 7.83

company: KHD

BF 10L 413 F

engine: 265 kW (360 PS)

/ 2050 min⁻¹bzw. 259 kW (352 PS)
(Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	11,6+0,1	13,8-14,0	0,4(0,8)			
300	6,9-7,1	1,8- 2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1220	15,2-17,8	-	-	-	ca. 24	100	min. 8,4	250	0,5-0,8
ca. 64	9,7	1190-1200					300	6,9-7,1	550	3,6-4,2
	4,0	1270-1300					465-525 = 2,0		850	5,4-5,7
	1400	0 - 1,0							1150	7,8

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,9 bar 138,0-140,0 (135,0-143,0)	1190-1200*			100	110,0-140,0	1150	10,7+0,2
							1025	10,9+0,2
							875	11,4+0,2
							800	11,6+0,1
			LDA 500	0 bar 85,0-89,0 (82,0-92,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2
3.84

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D. Adjustment Test for Manifold Pressure Compensator

KHD 15,8 f

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10 P..LS 3073 RQV.. PA 549	0,55	0,90 0 0,39	11,2-11,3 11,6-11,7 9,4-9,5 10,1-10,3

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 f

1. Edition

En

PE 8 P 120 A 620/4 LS 400 RSV 250-1000 P7A 460

supersedes

company KHD

engine BA 8 M 816

Komb.-Nr. 0 401 878 100

1 - 4 - 7 - 6 - 8 - 5 - 2 - 3 je $45^0 \pm 0,5^0$ ($\pm 0,75^0$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 mm (from BDC)
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5 (0,9)			
250	6,3-6,5	2,2-2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,9	1000	14,9-15,0
		x = 5,75					250	6,3-6,5	300	16,2-16,8
							345-405	= 2,0	450	14,9-15,0
ca. 67	13,9	1040-1050								
2a	4,0	1080-1110								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min				Idle			
rev/min	cm ³ /1000 strokes	3	4	5		rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2					6	7	8	9
Not known!		1040-1050*	-	-		100	19,5-21,0 mm RW	-	-
Carry out adjustment on engine									

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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C24

C24

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 e

3. Edition

En

PF 10 P 110 A 920/5 LS 3073 RQV 300-1250 PA 549-1

Komb.-Nr. 0 401 849 704

1-10- 9- 4- 3- 5- 5- 8- 7- 2

0-72-72-99-144-171-216-243-288-315[±] 0,5° ([±] 0,75°)

supersedes 83

company KHD

engine BF 10 L 413 F

294 KW (400 PS) (1)

265 KW (360 PS) (2)

bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2.8-2.9}
(2.75-2.95) mm (from BDC) RW = 9.0 - 12.0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12.1+0.1	14.9-15.1	0.4 (0.8)			
300	6.3-6.5	1.1-1.5	0.45(0.75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300	15.2-17.8	-	-	-	ca. 22	100	min. 8.2	250	0.5-0.8
ca. 66	11.1	1290-1300					300	6.7-6.9	580	2.9-3.1
	4.0	1370-1400							920	4.8-5.0
	1500	0-1.0				320-500			250	8.0
						③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(1)		1290-1300*	LDA	0.7 bar	100	130.0-150.0	-	-	
LDA	0.7 bar		900	144.0-146.0		126.0-154.0)			
1250	149.0-151.0			(142.0-148.0)		=13.0- 13.2			
	(147.0-153.0)		LDA	0 bar		mm RW			
			500	94.0- 96.0					
				(92.0- 93.0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

2.84

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D1

-2-

Torque control travel a = mm

Checking values in brackets

- 1 mm less control rod travel than co: 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

En

Test Specifications Fuel Injection Pumps **1A** and Governors

40

WPP 001/4 KHD 9,6 b

3. Edition

En

PES 6 P 110 A 720 RS 3079 RSV 300-1150 P 8/486

Komb.-Nr. 0 402 076 714

supersedes 9.83
company KHD
engine F 6 L 413 FRC
199 kW (271 PS)
/ 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8 - 2,9} (2,75-2,95) mm (from BDC) RW=9,0 - 12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	14,2+0,1	17,7 - 18,1	0,4(0,8)			
300	7,2-7,3	1,3 - 1,9	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0	-	-	-	ca. 13	300	6,7	1150	14,2+0,1
	x = 2,75								350	15,4+0,6
ca. 48	13,2	1190-1200					300	7,2-7,3	550	14,2+0,1
2a	4,0	1220-1250					300-360	= 2,0		
	1390	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1150	0,9 bar 177,0-181,0 (174,0-184,0)	1190-1200*	LDA 800	0,9 bar 175,0-179,0 (172,0-182,0)	100	190,0-210,0			
			LDA 500	0 bar 123,0-125,0 (120,0-128,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

11.83

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D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 b -2-

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure
increasing

Testoil-ISO 4113

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES6P..RS3079 with .. P8/486	0,9	0 0,57 0,30	14,2 - 14,3 11,9 - 12,0 13,8 - 13,9 12,4 - 12,8

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

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WPP 001/4 KHD 9,6 a
1. Edition

En

PES 6 P 110 A 720 RS 3079 RSV 300-1250 P 8/486

supersedes -
company KHD
engine BF 6 L 413 FRC
199 kW (271 PS)
/ 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9
Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	14,5+0,1	18,0 - 18,4	0,4(0,8)			
300	7,2-7,3	1,1 - 1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.14	300	6,7	1250	14,5+0,1
ca.58	x = 4,0									
	13,5	1290-1300					100	min.20,0	350	15,7+0,6
	4,0	1350-1380					300	7,2-7,3	550	14,5+0,1
2a	1520	0,3 - 1,7					510-570	= 2,0mm		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
LDA 1250	0,9 bar 180,0-184,0 (175,0-183,0)	1290-1300*	LDA 800	0,9 bar 167,0-173,0 (164,0-173,0)	100	190,0-210,0	-	-	
			LDA 500	0 bar 123,0-125,0 (119,0-129,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

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9.82

Testoil-ISO 4113

D5

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D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 a -2-

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3079 with ..P 8/486	0,9	0	14,5 - 14,6
		0,57	12,1 - 12,2
		0,30	13,9 - 14,0
			12,8 - 13,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 9,5 b

En

PE 6 AM 80 B 310 RS21 RQ 250/1075 A 314 D
RS2002 A 386 D

supersedes 3.66

company: KHD

engine: F 6 L 714 A

"diesel" = flap touching
"gasoline" = flap free-standing
(→ A 314 D)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 \pm 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	7,4 - 7,8	0,4			
	9	3,9 - 4,7				
	15	10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point		Test specifications				Test specifications				Control rod travel	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1050	14,0-14,8	1050	14,4	1100 1120 1140 1190	14,2-14,4 4,5-12,6 0 - 9,0 0	440	0	200 250 300 340	7,4-8,1 4,8-7,5 0,6-3,8 0	400 600 800	16,0-16,2 15,5-15,9 14,5-14,9

Torque-control travel
on flyweight assembly dimension a = $0,5$ mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1050	(Diesel) 72,5 - 74,5			800	74,5 - 77,5	100	mind. 9,9
1050	(gasoline) 78,5 - 82,5	400		600	75,0 - 78,0		

Checking values in brackets

Testoil-ISO 4113

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D7

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 1 g 3

7. Edition

En

PES 4 A 85 D 410/3 RS 2638 RSV 325-1150 A 0 B 2168

AOC 2168 L

Komb.-Nr. 0 400 864 054

Symbol S 29

1 - 3 - 4 - 2 je $90^\circ \pm 0,5^\circ (\pm 0,75)$

Symbol S 28

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$
(2,45-2,65) mm (from BDC)

supersedes 10.83
company KHD
engine BF 4 L 913
66 kW (90 PS)
/ 2300 min⁻¹
tractor DX 92 (1)
60 kW (82 PS)
/ 2300 min⁻¹
tractor DX 86 (2)
BF 4 L 913 T

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery (1) cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery (2) cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1150	11,8+0,1	8,2 - 8,3	0,3(0,45)	10,6+0,1	7,5 - 7,6	
325	7,7-7,9	0,9 - 1,5	0,2(0,4)	7,7-7,9	1,0 - 1,6	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 29	325	7,3	1150	11,8+0,1
	x =	4,0					100	min. 19,5	500	12,3+0,1
ca. 53	10,8	1190-1200					325	7,7- 7,9	965	12,0+0,2
	4,0	1325-1355					700-760	= 2,0		
2a	1495	0,3 -1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
(1) 1150	80,5-81,5 (78,5-83,5)	1190-1200*	800	79,0-82,0 (76,5-84,5)	100	108,5- 118,5 = RW 16,9 - 17,4mm	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

Test Specifications Distributor-Type Fuel Injection Pump

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WPP 001/4 KHD 5, 7a

3. Edition

En

VA 6/100 H 1150 BR 45

supersedes 7.77
company KHD
engine F 6L 912

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,2 mm
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

Technical-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	900	2, 2-3, 2 mm		
1 2 Supply pump pressure	900	4, 6-5, 1 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	52, 0-53, 0 cm ³ /1000 strokes		2, 5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	17, 0-23, 0 cm ³ /1000 strokes		3, 0
1 5 Start	100	mind. 80, 0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1170	36, 0-44, 0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	580-700 (550-730)	900	1000-1100
	mm	Beginn	(1, 9-3, 5)	3, 7-4, 4 (3, 4-4, 7)
2 2 Supply pump	rev/min	100	900	1150
	kp/cm ²	0, 6-1, 1 (0, 4-1, 3)	(4, 4-5, 3)	5, 7-6, 2 (5, 5-6, 4)
Overflow delivery	rev/min	500		1150
	cm ³ /10 s	mind. 25, 0		55-125 (40-140)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1200-1250 (1180-1270)	0	
		1170	(35, 0-45, 0)	
		1100	51, 5-54, 5 (50, 5-55, 5)	
		900	(51, 5-53, 5)	
		600	51, 5-54, 5 (50, 5-55, 5)	
	Stop	1150	0	
Idle stop	Full	420-470 (400-490)	0	
		300	(16, 0-24, 0)	
		100	mind. 80, 0	
End stop	Start	300	max. 20, 0	
		500	max. 45, 0	

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 5,5 mm Dimension V = - mm Maß I = 7,0 mm Maß II = 4,5 mm Maß III = 32,8 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5, 7a 2

1. Edition

En

Test-ISO 4113

VA 6/100 H 1150 BR 45-1

supersedes
company **KHD**
engine **F 6 L 912**

Pre-stroke setting $0,2 \text{ mm}$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	900	2, 2-3, 2 mm		
1 2 Supply pump pressure	900	4, 6-5, 1 kp/cm ²		
1 3 Full-load delivery without charge-air pressure	900	52, 0-53, 0 cm ³ /1000 strokes		2, 5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	17, 0-23, 0 cm ³ /1000 strokes		3, 0
1 5 Start	100	mind. 80, 0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1170	36, 0-44, 0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	580-700 (550-730)	900	1000-1100
	mm	Beginn	(1, 9-3, 5)	3, 7-4, 4 (3, 4-4, 7)
2 2 Supply pump	rev/min	100	900	1150
	kp/cm ²	0, 6-1, 1 (0, 4-1, 3)	(4, 4-5, 3)	5, 7-6, 2 (5, 5-6, 4)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1200-1250 (1180-1270)	0	
		1170	(35, 0-45, 0)	
		1100	51, 5-54, 5 (50, 5-55, 5)	
		900	(51, 5-53, 5)	
		600	51, 5-54, 5 (50, 5-55, 5)	
	Stop	1150	0	
Idle stop	Full	420-470 (400-490)	0	
		300	(16, 0-24, 0)	
		100	mind. 80, 0	
End stop	Start	300	max. 20, 0	
		500	max. 45, 0	

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Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 5,5 mm Dimension V = - mm Maß I = 7,0 mm Maß II = 4,5 mm Maß III = 32,8 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5,7a 1

2. Edition

En

VA 6/100 H 1150 BR 45-2

supersedes 7.77
company KHD
engine F 6 L 912

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting 0,2 mm
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

Testoil-ISO 4113

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	900	2,0-3,0 mm		
1 2 Supply pump pressure	900	4,4-4,9 kp/cm ²		
1 3 Full load delivery without charge air pressure	900	57,0-58,0 cm ³ /1000 strokes		2,5
Full load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	17,0-23,0 cm ³ /1000 strokes		3,0
1 5 Start	100	mind. 80 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1180	46,0-54,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min mm	610-730 (580-760) Beginn	900 (1,7-3,3)	1000-1100 3,7-4,4 (3,4-4,7)
2 2 Supply pump	rev/min kp/cm ²	100 0,5-1,0 (0,3-1,2)	900 (4,2-5,1)	1150 5,7-6,2 (5,5-6,4)
Overflow delivery	rev/min cm ³ /10 s	500 mind. 25	1000 55-125 (40-140)	

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1260-1330 (1240-1350)	0	
		1180	(45,0-55,0)	
		1100	56,5-59,5 (55,5-60,5)	
		900	(56,5-58,5)	
		500	62,0-65,0 (61,0-66,0)	
	Stop	1150	0	
Idle stop	Full	500-570 (480-590)	0	
		300	(16-24)	
		100	mind. 80,0	
End stop	Start	200	mind. 80,0	

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D13

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension Φ 1,5 mm Dimension Ψ - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5, 7a 3

1. Edition

En

VA 6/100 H 1150 BR 45-3

supersedes

company **KHD**

engine **F6L 912**

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B

Pre-setting see reverse side

Testoil-ISO 4113

Pre-stroke setting $0,2 \text{ mm}$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "C".

1. Settings	rev/min	Settings	Charge air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	2-3 mm		
1.2 Supply pump pressure	900	4, 4-4, 9 kp/cm ²		
1.3 Full load delivery without charge air pressure	900	57-58 cm ³ /1000 strokes		2, 5
Full-load delivery with charge air pressure		cm ³ /1000 strokes		
1.4 Idle speed regulation	300	17-23 cm ³ /1000 strokes		
1.5 Start	100	mind. 80 cm ³ /1000 strokes		3, 0
1.6 Full-load speed regulation	1180	46-54 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min mm	610-730 (580-760) Beginn	900 (1, 7-3, 3)	1000-1100 3, 7-4, 4 (3, 4-4, 7)
2.2 Supply pump	rev/min kp/cm ²	100 0, 5-1, 0 (0, 3-1, 2)	900 (4, 2-5, 1)	1150 5, 7-6, 2 (5, 5-6, 4)
Overflow delivery	rev/min cm ³ /10 s	500 mind. 25	1000 55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge air pressure kp/cm ²
End stop	Full	1260-1330 (1240-1350)	0	
		1180	(45-55)	
		1100	56, 5-59, 5 (55, 5-60, 5)	
		900	(56, 5-58, 5)	
		500	62-65 (61-68)	
	Stop	1150	0	
Idle stop	Full	500-570 (480-590)	0	
		300	(16-24)	
		100	mind. 80, 0	
End stop	Start	200	mind. 80, 0	

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D15

D15

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 45 \pm 8^\circ$</p> <p>$\gamma = 30 \pm 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension \bar{TV} 1,5 mm</p> <p>Dimension \bar{V} - mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 3,8a

3. Edition

En

Testoil-ISO 4113

VA 4/110 H 1400 BR 50
BR 50-1

supersedes **12.74**
company **KHD**
engine **F 4 L 912-80 PS**

Pre-stroke setting **0,2 mm**
Setting of the pointer at a stroke of 1 mm in
relation to outlet "C".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	5,8-6,8 mm		
1.2 Supply pump pressure	1000	4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1000	60,0-61,0 cm ³ /1000 strokes		
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	250	9,0-15,0 cm ³ /1000 strokes		
1.5 Start	100	mind. 110,0 cm ³ /1000 strokes		
1.6 Full load speed regulation	1460	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	430-560 (400-590)	1000	1250-1370
	mm	Beginn	(5,6-7,0)	9,7-10,4 (9,4-10,7)
2.2 Supply pump	rev/min	100	1000	1400
	kp/cm ²	1,0-1,5 (0,8-1,7)	(4,6-5,5)	5,9-6,4 (5,7-6,6)
Overflow delivery	rev/min	500	1000	
	cm ³ /10 s	mind. 25	55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1520-1650 (1500-1670)	0	
		1580	max. 5,0	
		1460	(35,0-45,0)	
		1350	55,0-58,0 (54,0-59,0)	
		1000	(59,5-61,5)	
		500	53,0-56,0 (52,0-57,0)	
	Stop	1400	0	
Idle stop	Full	290-340 (270-360)	0	
		250	(8,0-16,0)	
	Start	100	mind. 110,0	
End stop		mind. 200		

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Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 3,0 mm Dimension V = - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 3,8a 2

1. Edition

En

VA 4/110 H 1400 BR 50-3
BR 50-5

supersedes

company **KHD**

engine **F 4 L 912-72 PS**

Pre stroke setting **0,2 mm**
Setting of the pointer at a stroke of 1 mm in
relation to outlet "C".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers

Test Instructions and Test Equipment
VDI-WPP 161/4 B

Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	5,8-6,8 mm		
1.2 Supply pump pressure	1000	4,8-5,3 kp/cm ²		
1.3 Full load delivery without charge air pressure	1000	51,0-52,0 cm ³ /1000 strokes		
Full load delivery with charge air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	250	9,0-15,0 cm ³ /1000 strokes		
1.5 Start	100	mind. 110,0 cm ³ /1000 strokes		
1.6 Full load speed regulation	1460	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	430-560 (400-590)	1000	1250-1370
	mm	Beginn	(5,5-7,1)	0
2.2 Supply pump	rev/min	100	1000	1400
	kp/cm ²	1,0-1,5 (0,8-1,7)	(4,6-5,5)	5,9-6,4 (5,7-6,6)
Overflow delivery	rev/min			
	cm ³ /10 s			

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1520-1580 (1500-1600)	0	
		1460	(35,0-45,0)	
		1380	43,0-46,0 (42,0-47,0)	
		1000	(50,5-52,5)	
		500	42,0-45,0 (41,0-46,0)	
	Stop	1400	0	
Idle stop	Full	290-340 (270-360)	0	
		250	(8,0-16,0)	
		100	mind. 110,0	
End stop	Start	500	30,0-42,5 (29,0-43,5)	
		mind. 200		

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Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV = 3,0 mm Dimension V = - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5,7d

2. Edition

En

VA 6/100 H 1050 CR 168
0 460 306 159

supersedes S. 72

company KHD

engine F 6 L 912

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting $0,2 \text{ mm} \pm 0,02 (\pm 0,04)$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	1,2-2,2 mm		
1.2 Supply pump pressure	800	4,0-4,5 kp/cm ²		
1.3 Full load delivery without charge-air pressure	1020	49,0-50,0 cm ³ /1000 strokes		2,5
Full load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 90,0 cm ³ /1000 strokes		
1.6 Full load speed regulation	--	-- cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	500-650 (470-680)	800	900-1050
	mm	Beginn	(0,9-2,5)	2,4-3,1 (2,1-3,4)
2.2 Supply pump	rev/min	200	800	1050
	kp/cm ²	1,0-1,5 (0,8-1,7)	(3,8-4,7)	4,9-5,4 (4,7-5,6)
Overflow delivery	rev/min	500		1050
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1130-1180 (1110-1200) 1060-1080 1020 800 500	0 Beginn (48,5-50,5) 46,5-48,5 (45,5-49,5) 52,5-55,5 (51,5-56,5)	
	Stop	1050	0	
Idle stop	Full	400-460 (380-480) 300	0 (11,0-19,0)	
	Start	100	mind. 90,0	
End stop		150-250		

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D21

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Angle to the stop plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 45 \pm 8^\circ$ $\gamma = 30 \pm 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension \bar{IV} 2,6 mm Dimension \bar{V} 24,6 mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5,7d 1

1. Edition

En

VA 6/100 H 1150 CR 168-1
0 460 306 160

supersedes
company **KHD**
engine **F 6 L 912**

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

Pre-stroke setting $0.2 \text{ mm} + 0.02 (\pm 0.04)$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	800	1,2-2,2 mm		
1.2 Supply pump pressure	800	4,0-4,5 kp/cm ²		
1.3 Full-load delivery without charge air pressure	900	57,5-58,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 90,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1190	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	500-650 (470-680)	800	900-1050
	mm	Beginn	(0,9-2,5)	2,4-3,1 (2,1-3,4)
2.2 Supply pump	rev/min	200	800	1050
	kp/cm ²	1,0-1,5 (0,8-1,7)	(3,8-4,7)	4,9-5,4 (4,7-5,6)
Overflow delivery	rev/min	500		
	cm ³ /10 s	55-100 (40-110)		55-100 (40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1220-1260 (1200-1280)	0	
		1190	(25,0-35,0)	
		1160-1180	Beginn	
		1130	57,0-60,0 (57,0-59,0)	
		900	(57,0-59,0)	
		500	59,5-62,5 (58,5-63,5)	
	Stop	1150	0	
Idle stop	Full	400-460 (380-480)	0	
		300	(11,0-19,0)	
		100	mind. 90,0	
End stop		150-250		

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Angle to the stop plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 52 \pm 8^\circ$</p> <p>$\gamma = 30 \pm 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV$\bar{=}$ 2,6 mm</p> <p>Dimension V$\bar{=}$ 24,6 mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 KHD 5,7d 2

1.. Edition

En

Testoil-ISO 4113

VA 6/100 H 1150 CR 168-2
0 460 306 208

supersedes
company **KHD**
engine **F 6L 912**

Pre-stroke setting $0,2 \text{ mm} \pm 0,02 (\pm 0,04)$
Setting of the pointer at a stroke of 1 mm in
relation to outlet "B".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDI WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1 1 Timing device travel	800	1,2-2,2 mm		
1 2 Supply pump pressure	800	4,0-4,5 kp/cm ²		
1 3 Full load delivery without charge air pressure	900	57,5-58,5 cm ³ /1000 strokes		2,5
Full load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1 5 Start (autom.)	100	mind. 90,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1190	26,0-34,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	500-650(470-680)	700	800	900-1050
	mm	Beginn	0,6-1,6(0,3-1,9)	(0,9-2,5)	2,3-3,1(2,0-3,4)
2 2 Supply pump	rev/min	200		800	1150
	kp/cm ²	1,0-1,5(0,8-1,7)		(3,8-4,7)	5,2-5,7(5,0-5,9)
Overflow delivery	rev/min	500			1150
	cm ³ /10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1220-1260 (1200-1280)	0	
		1190	(25,0-35,0)	
		1160-1180	Beginn	
		1130	57,0-60,0 (56,0-61,0)	
		900	(57,0-59,0)	
		500	59,5-62,5 (58,5-63,5)	
	Stop	1150	0	
Idle stop	Full	400-460 (380-480)	0	
		300	(11,0-19,0)	
	Start	100	mind. 90,0	
End stop		150-250		

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 52 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension \mathcal{W} 2,6 mm Dimension \mathcal{V} 24,6 mm

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 Vol 3,6f
2. Edition

En

Testoil-ISO 4113

VE 6/11 F 1800 L 19-5

0 460 416 012 Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

supersedes 0.82

company Volvo

engine T AMD 40-A

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,2 mm \pm 0,02 (0,04) mm

see VDT-W-460/

1. Settings

	Rot speed rev/min	Settings	Charge air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,8-3,2 mm		
1 2 Supply pump pressure	1500	6,2-6,8 bar (kgf/cm ²)		
1 3 Full-load delivery without charge air pressure	1500	75,0-76,0 cm ³ /1000 strokes		2,5(3,0)
Full-load delivery with charge air pressure	--	-- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	17,0-23,0 cm ³ /1000 strokes		2,5(3,0)
1 5 Start	100	min. 70,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	1950	34,0-42,0 cm ³ /1000 strokes		
1 7 Load-dependent start of delivery	--	--		

2. Test Specifications

checking values in brackets ()

2 1 Timing device	n = rev/min mm	1000 0,9-1,7(0,6-2,0)	1500 (2,3-3,7)	1800 3,7-4,5(3,4-4,8)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,3-2,9		1800 7,2-7,8
Overflow delivery	n = rev/min cm ³ /10 s	500 55-111(40-126)		1800 55-111(40-126)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge air press bar (kgf/cm ²)
End stop	2100 1950 1770 1500 600	max. 8,0 (33,5-42,5) 72,0-74,4 (70,9-75,5) (73,2-77,8) 62,0-67,0 (61,5-67,5)	
switch-off	1800	0	
Idle stop	500-580 350	0 (16,0-24,0)	
End stop	100-120 220	min. 70 max. 65	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	--
KF	5,9-6,1
MS	1,4-1,6
SVS	max. 3,6
XK	18,7-20,7
XL	10,9-14,2

Observations

2 4 Solenoid

max cut-in voltage min. 10 V
rated voltage 12V.

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Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 PER 5,8b
2. Edition

En

Testol-ISO 4113

VE 6/12 F 1300 L 21

0 460 426 001

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A". **Overflow temperature 45° C**

supersedes 2.82
company Perkins
engine T 6.354.4

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm \pm 0,02 (0,04) mm

see VDT-W-460/

1. Settings

	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	600	3,6-4,2 mm	0,67	
1 2 Supply pump pressure	600	3,6-4,6 bar (kgf/cm ²)	0,67	
1 3 Full-load delivery without charge-air pressure	500	78,0-83,0 cm ³ /1000 strokes	0	2,5(3,0)
Full-load delivery with charge-air pressure	1000	96,5-97,5 cm ³ /1000 strokes	0,67	
1 4 Idle speed regulation	270	8,0-12,0 cm ³ /1000 strokes	0	2,5(3,0)
1 5 Start	100	min. 100,0 cm ³ /1000 strokes	0	
1 6 Full-load speed regulation	1480	42,0-50,0 cm ³ /1000 strokes	0,67	
1 7 Load-dependent start of delivery	--	--		

2. Test Specifications

checking values in brackets ()

2 1 Timing device LDA = 0,67 bar	n rev/min mm	400 1,6-2,6(1,4-2,8)	600 (3,2-4,6)	800 3,6-4,5(3,35-4,75)
2 2 Supply pump LDA = 0,67 bar	n rev/min bar (kgf/cm ²)	400 2,8-3,8		800 4,3-5,3
Overflow delivery	n rev/min cm ³ /10 s	500 55-111(40-126)		1300 55-111(40-126)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	1550	3,0-11,0 (2,0-12,0)	0,67
	1480	(4,0-5,0)	0,67
	1300	88,5-92,5 (88,2-92,8)	0,67
	1000	89,0-93,0 (88,7-93,3)	0
	1000	(94,7-99,3)	0,67
	* 700	89,0-94,0 (89,2-93,8)	0,32
	500	(77,5-83,5)	0
switch-off mech.	500	0	
Idle stop	330-380 270	0 (6,0-14,0)	
End stop	100 100	min. 100 max. 80	

3. Dimensions

Designation	for assembly and adjustment mm
K	--
KF	5,2-5,4
MS	1,7-1,9
SVS	max. 3,9
A	2,6-7,6
B	10,4-15,6

Observations

Manifold-pressure
compensator stroke
= 4,0 mm
Correction at the
adjusting nut. (46)

2 4 Solenoid

max. cut-in voltage
test voltage

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Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 IHC 6,6 a

3. Edition

En

VE 6/12 F 1250 R 38

(P)

0 460 426 007

008

Nozzle-and-holder assembly

1 688 901 020 (172 + 3 bar)

supersedes 10.83

company: IHC

engine: DT 402/3994

**

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,4 mm \pm 0,02 (0,04)

see VDT-W460/

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1000	3,5-4,1 mm		
1.2 Supply pump pressure	1000	5,3-5,9 bar (kgf/cm ²)		
1.3 Full-load delivery without charge-air pressure	900	112,0-113,0 cm ³ /1000 strokes		4,0 (4,5)
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		3,5 (4,5)
1.4 Idle speed regulation	500	15,0-21,0 cm ³ /1000 strokes		
1.5 Start	100	min. 95,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	56,0-64,0 cm ³ /1000 strokes		
1.7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 1,3-2,1 (1,0-2,4)	1000 (3,1-4,5)	1200 4,6-5,4 (4,3-5,7)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 3,6-4,2	1250 6,0-6,6	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)	1250 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1420 1370 1300 1230 900 700 500	max. 1,0 min. 1,0 (55,0-65,0) 105,5-108,5 (104-110) (109,5-115,5) 99,0-103,0 (97,3-104,7) 82,0-86,0 (80,3-87,7)	
switch-off	1250	0	
Idle stop	570 520 500	max. 1,0 min. 1,0 (13,0-23,0)	
End stop	280 380	min. 105 max. 105	
2.4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,4-5,6
MS	0,8-1,0
SVS	4,6-6,0
A XK	20,2-22,2
B XL	9,6-12,9

Observations

** Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 REN 2,0 b

3. Edition

En

Testoil-ISO 4113

 VE 4/9 F 2250 R 41
0 460 494 027

Overflow temperature 45° C

 1.84
superseded by Renault
company 852
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	4,4-4,8 mm		
1.2 Supply-pump pressure	1400	4,9-5,5 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	1400	38,0-39,0 cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery without charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle regulation	400	7,5-11,5 cm ³ /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2400	17,0-23,0 cm ³ /1000 strokes		
1.6 Start	100	min. 52,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	1400	--		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 2,6-3,4 (2,3-3,7)	1400 (3,9-5,3)	2000 6,7-7,5 (6,4-7,8)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	1000 3,9-4,5		2000 6,5-7,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2550 2400 2200 2100 1400 1000	max. 2,0 (16,0-24,0) 31,0-33,0 (29,8-34,2) 32,5-34,5 (31,2-35,8) (36,3-40,7) 35,3-38,3 (33,8-39,8)	
switch-off	2250	0	
Idle stop	650 400	max. 5,0 (5,5-13,5)	
End stop	320 430	min. 45,0 max. 45,0	
2.4 Solenoid	max. cut-in voltage xxx min. 10,0 V test voltage xxx rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 3,5
A XK	20,1-22,1
B XL	9,5-13,3

Observations

BOSCH

 Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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Test Specifications

Distributor-type

Fuel-injection Pumps

VE 4/10 F 1500 R 42

0 460 404 007

Setting of the pointer at a stroke of 1 mm in
relation to outlet "A". **Overflow temperature 45° C**

supersedes
company **MAN**
engine **D 0224 M**

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04) mm

see VDT-W-460/

1. Settings

	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1000	5,3-5,7 mm		
1 2 Supply pump pressure	1000	5,5-6,1 bar (kgf/cm ²)		
1 3 Full-load delivery without charge-air pressure	1000	61,5-62,5 cm ³ /1000 strokes		2,5 (3,5)
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1 4 Idle speed regulation	350	10,0-14,0 cm ³ /1000 strokes		2,5 (3,5)
1 5 Start	100	min. 60,0 cm ³ /1000 strokes		
1 6 Full load speed regulation	1650	7,0-13,0 cm ³ /1000 strokes		
1 7 Load-dependent start of delivery	-	-		

2. Test Specifications

		checking values in brackets ()		
2 1 Timing device	n = rev/min mm	600 2,6-3,4 (2,3-3,7)	1000 (4,8-6,2)	1400 7,6-8,4 (7,3-8,7)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	600 3,6-4,2		1500 7,0-7,6
Overflow delivery	n = rev/min cm ³ /10 s	500 55-110 (40-125)		1500 55-110 (40-125)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)	Designation	for assembly and adjustment mm
End stop	1700-1800 1650 1550 1500 1000 600	0 (5,5-14,5) max. 60,0 68,5-71,5 (67,35-72,65) (59,35-64,65) 57,25-60,75 (55,6-62,4)		K KF MS SVS	- 5,7-5,9 1,3-1,5 max. 2,0
switch-off	1500	0		A XK B XL	18,6-20,6 9,7-13,5
Idle stop	380-430 350	0 (7,5-16,5)		Observations pushing electro- magnet 24 V	
2 4 Solenoid	max. cut-in voltage test voltage				

Test Specifications

Distributor-type

Fuel-injection Pumps

VE 6/12 F 1100 R 52 Overflow temperature 45° C

O 460 426 011

DHK: 1 688 901 1120

Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

 supersedes
 company IHC
 engine: D 358

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02$ (0,04)

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	700	4,5-4,9 mm	0,8	
1.2 Supply-pump pressure	700	5,7-6,3 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	800	94,0-95,0 cm ³ /1000 strokes	0,8	3,5 (4,0)
Full-load delivery without charge-air pressure	500	73,0-77,0 cm ³ /1000 strokes	0	
1.4 Idle regulation	380	16,0-20,0 cm ³ /1000 strokes	0	3,5 (4,0)
1.5 Full-speed regulation	1200	16,0-24,0 cm ³ /1000 strokes	0,8	
1.6 Start	100	min: 90 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	400	700	900
IDA 0,8 bar	mm	1,7-2,5 (1,4-2,8)	(4,0-5,4)	5,8-6,6 (5,5-6,9)
2.2 Supply pump	n = rev/min	400	1100	
IDA 0,8 bar	bar (kgf/cm ²)	4,5-5,1	6,9 - 7,5	
Overflow delivery	n = rev/min	500 (0 bar)	1100 (0,8 bar)	
	cm ³ /10 s	55-138 (40-153)	55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1260	max. 1,5	0,8
	1200	(15,0-25,0)	0,8
	1170	57,0-63,0 (57,0-63,0)	0,8
	1080	86,8-89,2 (85,0-91,0)	0,8
	800	(91,5-97,5)	0,8
	*500	83,0-86,0 (80,8-88,2)	0,33
	500	(71,3-78,7)	0
switch-off	1100	0	
Idle stop	480	max. 1,5	
	400	min. 2,0	
	380	(13,0-23,0)	
End stop	380	min. 75	
	450	max. 75	
2.4 Solenoid	max. cut-in voltage test voltage		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,4-5,6
MS	1,3-1,5
SVS	max. 6,0
X ^A XK	20,2-22,2
X ^B XL	10,2-13,5

Observations

* Manifold-pressure compensator stroke = 4,5 mm
Correction at the adjusting nut. (46)

Test Specifications

Distributor-type

Fuel-injection Pumps

VE 4/9 F 2400 R 66-14

(I 460 494 118

 supersedes 1.83
 company: VWV
 engine: 086

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/

Testoil-ISO 4113

Pre-stroke setting	mm	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1. Settings					
1 1 Timing device travel		1500	2,3-2,7 mm		
1 2 Supply pump pressure		1500	4,9-5,5 bar (kgf/cm ²)		
1 3 Full-load delivery without charge-air pressure		1500	31,5-32,5 cm ³ /1000 strokes		3,0
Full-load delivery with charge-air pressure		-	- cm ³ /1000 strokes		
1 4 Idle speed regulation		450	6,0-10,0 cm ³ /1000 strokes		3,0
1 5 Start		100	min. 38,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation		2600	11,0-17,0 cm ³ /1000 strokes		
1 7 Load-dependent start of delivery		-	-		

2. Test Specifications

checking values in brackets ()

2 1 Timing device	n = rev/min mm	1000 0,7-1,5(0,4-1,8)	1500 (1,8-3,2)	2400 5,5-6,3(5,2-6,6)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	600 2,8-3,4		2400 7,0-7,6
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		2400 55-138(40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)	3. Dimensions for assembly and adjustment mm
End stop	2800 2600 2400 1500 600	max. 2,5 (10,0-18,0) 26,5-28,5 (25,2-29,8) (29,7-34,3) 19,5-22,5 (18,0-24,0)		K KF MS SVS A XK B XL
switch-off elektr.	400	0		18,4-20,4
mech.	2400	0		10,0-13,4
Idle stop	1200 600 450	max. 6,0 max. 7,0 (4,0-12,0)		Observations
End stop	400 500	min. 15,5 max. 21,5		
2 4 Solenoid	max cut-in voltage xxxxxxx	xxx min. 10 V rated voltage 12V.		

⑥

Test Specifications

Distributor-type

Fuel-injection Pumps

46

WPP 001/4 VMA 2,2 a 1
1. Edition

En

VE 4/10 F 2100 L 75-1
0 460 404 034

Overflow temperature 45° C

supersedes
company: VM-Motorri
engine: HR 492 HT

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1600	5,3 - 5,7 mm	0,8	
1.2 Supply-pump pressure	1600	5,8 - 6,4 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1600	47,5-48,5 cm ³ /1000 strokes	0,8	max. 3,0
Full-load delivery without charge-air pressure	600	35,0-36,0 cm ³ /1000 strokes	0	
1.4 Idle regulation	400	15,0-19,0 cm ³ /1000 strokes	0	max. 3,0
1.5 Full-speed regulation	2300	24,5-30,5 cm ³ /1000 strokes	0,8	
1.6 Start	100	min. 50 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing				

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA = 0,8 bar	n = rev/min mm	1000 1,7-2,5 (1,4-2,8)	1600 (4,8-6,2)	2100 7,6-8,6 (7,5-8,9)
2.2 Supply pump LDA = 0,8 bar	n = rev/min bar (kgf/cm ²)	400 1,5-2,1	2100 7,5-8,1	
Overflow delivery	n = rev/min cm ³ /1000 s	400 55-138 (40-153)	2100 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2450	max. 5,0	0,8
	2300	(23,5-31,5)	0,8
	2100	41,5-44,5 (40,8-45,2)	0,8
	1600	31,5-34,5 (30,8-35,2)	0
	1600	(45,8-50,2)	0,8
	* 700	43,5-45,5 (42,3-46,7)	0,3
	600	(33,3-37,7)	0
switch-off			
Idle stop	550	max. 2,0	
	450	min. 2,0	
	400	(13,0-21,0)	
End stop	400	min. 45	
	500	max. 37	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,3
KF	5,7-5,9
MS	0,7-0,9
SVS	3,8
^XK	20,2-22,2
B	
XL	10,3-13,6

Observations

* Manifold-pressure
compensator stroke
= 4,2 mm
Correction at the
adjusting nut. (46)

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
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5.84

E10

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VW 1,6 V 10

1. Edition

En

VE 4/9 F 1500 R 85-6

Overflow temperature 45° C

0 460 494 120

 supersedes
 company: VW
 engine: 068

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/.

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1000	1,3-1,7 mm		
1 2 Supply-pump pressure	1000	3,8-4,4 bar (kgf/cm ²)		
1 3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1480	32,5-33,5 cm ³ /1000 strokes		2,5 (3,0)
1 4 Idle regulation	425	6,0-10,0 cm ³ /1000 strokes		2,0 (3,0)
1 5 Full-speed regulation	1620	16,0-21,0 cm ³ /1000 strokes		
1 6 Start	100	min. 35,0 cm ³ /1000 strokes		
1 7 Load-dependent port-closing	-	-		

2. Test Specifications

checking values in brackets ()

2 1 Timing device	n = rev/min mm	1000 (0,8-2,2)	1480 3,3-4,1 (3,0-4,4)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	600 2,8-3,4	1480 4,9-5,3
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)	1480 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1730 1620 1480 600	max. 4,0 (15,0-23,0) (30,8-35,2) 21,0-24,0 (19,5-25,5)	
switch-off elektr.	400	0	
Idle stop	525 425	max. 3,0 (4,0-12,0)	
End stop	400 500	min. 17,5 max. 23,0	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,3
KF	5,7-5,9
MS	0,9-1,1
SVS	5,8
A	
B	

Observations

2 4 Solenoid

 max. cut-in voltage xxx min. 10 V
 test voltage xxxxxx rated voltage 12V.

Test Specifications

Distributor-type

Fuel-injection Pumps

VE 4/11 F 1900 L 111
0 460 414 006

supersedes 8.83
company Volvo-Penta
engine TAMD 8199 B-110 PS

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02(0,04)$

see VDT-W-460/

Testbenches 4113

1. Settings	Rot speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,6-3,0 mm		
1 2 Supply pump pressure	1500	6,2-6,8 bar (kgf/cm ²)		
1 3 Full-load delivery without charge-air pressure	1000	71,5-72,5 cm ³ /1000 strokes		3,5
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1 4 Idle speed regulation	325	26,0-30,0 cm ³ /1000 strokes		3,5
1 5 Start	100	min. 80 cm ³ /1000 strokes		
1 6 Full-load speed regulation	2100	19,0-27,0 cm ³ /1000 strokes		
1 7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2 1 Timing device	n = rev/min mm	1000 0,5-1,3(0,2-1,6)	1500 (2,1-3,5)	1850 3,6-4,4(3,3-4,7)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	600 3,2-3,8		1850 7,2-7,8
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		1900 55-138(40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	2200 2100 2000 1850 1000 600	max. 7,0 (18,5-27,5) 42,0-48,0 (40,5-49,5) 70,5-73,5 (69,4-74,6) (69,4-74,6) 64,5-68,5 (63,1-69,9)	
switch-off			
Idle stop	325 450	(23,5-32,5) max. 3,0	
End stop	350 450	min. 70 max. 70	
2 4 Solenoid	max cut-in voltage xxx min. 10 V rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,8
MS	1,3
SVS	3,4
AXK	20,2-22,2
BXL	12,8-16,8

Observations

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 PEU 2,3 o

1. Edition

En

VE 4/10 F 2075 R 112
0 460 404 027

Overflow temperature 45° C

DHK: 1688 901 022

Test pressure line

6x2x450 mm / 1 680 750 073

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

supersedes

company:

engine:

Peugeot

XD 2 S - USA

Test Instructions and Test Equipment

see VDT-W-460/.

Pre-stroke setting

mm

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	4,8-5,2 mm	0,8	
1 2 Supply-pump pressure	1500	5,4-6,0 bar (kgf/cm ²)	0,8	
1 3 Full-load delivery with charge-air pressure	1125	44,2-45,2 cm ³ /1000 strokes	0,8	
Full-load delivery without charge-air pressure	600	37,3-38,3 cm ³ /1000 strokes	0	2,5(3,0)
1 4 Idle regulation	390	8,0-12,0 cm ³ /1000 strokes	0	2,5(3,5)
1 5 Full-speed regulation	2400	9,5-15,5 cm ³ /1000 strokes	0,8	
1 6 Start	100	min. 53 cm ³ /1000 strokes	0	
1 7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2 1 Timing device	n = rev/min	600	1000	1500	2000
LDA 0,8 bar	mm	1,0-1,8 (0,7-2,1)	2,7-3,3 (2,3-3,7)	(4,3-5,7)	6,8-7,6 (6,5-7,9)
2 2 Supply pump	n = rev/min	400	2075		
LDA 0,8 bar	bar (kgf/cm ²)	1,6-2,2	7,6-8,2		
Overflow delivery	n = rev/min	500 (0 bar)	2075 (0,8 bar)		
	cm ³ /10 s	55-138 (40-153)	55-138 (40-153)		

2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2450	max. 9,0	0,8
	2400	(8,5-16,5)	0,8
	2300	24,5-32,5 (24,5-32,5)	0,8
	2000	45,0-47,4 (44,0-48,4)	0,8
	1400	45,3-47,7 (44,3-48,7)	0,8
	1125	(42,5-46,9)	0,8
	*750	41,6-42,6 (39,9-44,3)	0,25
	600	(35,6-40,0)	0
switch-off			
Idle stop	450-550	0	
	390	(6,0-14,0)	
End stop	400	min. 50	
	500	max. 50	
2 4 Solenoid	max. cut-in voltage	xxx min. 10 V	
	max. voltage	rated voltage 12V.	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,3
KF	5,7-5,9
MS	0,9-1,1
SVS	2,3
X K	20,2-22,2
X L	8,8-12,1

Observations

Please note instruc-
tions on sheet 2.

Test hydr. cold-start accelerator:

Apply 12 V to magnet of hydr. cold-start accelerator.
500 1/min 2,2 - 3,4 (2,1 - 3,5) mm.

* Manifold-pressure compensator stroke = 4,5 mm

Test Specifications

Distributor-type

Fuel-injection Pumps

VE 4/10 F 2125 R 112-1 Overflow temperature 45° C
 0 460 404 028
 DHK: 1688 901 022; Test pressure line
 6x2x450 mm / 1 680 750 073

supersedes Peugeot
 company: XD 2 S
 engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,8 - 5,2 mm	0,8	
1.2 Supply-pump pressure	1500	5,4 - 6,0 bar (kgf/cm ²)	0,8	
1.3 Full-load delivery with charge-air pressure	1125	44,2-45,2 cm ³ /1000 strokes	0,8	
Full-load delivery without charge-air pressure	600	37,3-38,3 cm ³ /1000 strokes	0	2,5 (3,0)
1.4 Idle regulation	390	8,0-12,0 cm ³ /1000 strokes	0	2,5 (3,5)
1.5 Full-speed regulation	2450	9,5-15,5 cm ³ /1000 strokes	0,8	
1.6 Start	100	min: 53,0 cm ³ /1000 strokes	0	
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min	600	1000	1500	2000
LDA 0,8 bar	mm	1,0-1,8 (0,7-2,1)	2,7-3,3 (2,3-3,7)	(4,3-5,7)	6,8-7,6 (6,5-7,9)
2.2 Supply pump	n = rev/min	400			2075
LDA 0,8 bar	bar (kgf/cm ²)	1,6-2,2			7,6-8,2
Overflow delivery	n = rev/min cm ³ /10 s	500 (0 bar) 55-138 (40-153)			2125 (0,8 bar) 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2500	max. 9,0	0,8
	2450	(8,5-16,5)	0,8
	2350	23,0-31,0 (23,0-31,0)	0,8
	2050	45,0-47,4 (44,0-48,4)	0,8
	1400	45,3-47,7 (44,3-48,7)	0,8
	1125	(42,5-46,9)	0,8
	*750	41,6-42,6 (39,9-44,3)	0,25
	600	(35,6-40,0)	0
switch-off			
Idle stop	450-550	0	
	390	(6,0-14,0)	
End stop	400	min. 50	
	500	max. 50	
2.4 Solenoid	max. cut-in voltage xx min. 10 V rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	mm
K	3,3
KF	5,7-5,9
MS	0,9-1,1
SVS	2,3
AX K	20,2-22,2
B X L	8,9-12,2

Observations

Please note instructions on sheet 2.

Test hydr. cold-start accelerator:

Apply 12 V to magnet of hydr. cold-start accelerator.
500 1/min 2,2 - 3,4 (2,1 - 3,5) mm.

* Manifold-pressure compensator stroke = 4,5 mm

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VWV 2,4 a

4. Edition

En

VE 6/10 F 2400 L 116

0 460 406 018

supersedes 12.83

company VWV

engine 087 - T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

-

mm

see VDT-W-460/

1. Settings

	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	1,4-1,8 mm	0,75	
1 2 Supply pump pressure	1500	5,7-6,3 bar (kgf/cm ²)	0,75	
1 3 Full-load delivery without charge-air pressure	600	26,5-27,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	44,0-45,0 cm ³ /1000 strokes	0,75	2,5 (3,0)
1 4 Idle speed regulation	415	6,0-10,0 cm ³ /1000 strokes	0	2,0 (3,0)
1 5 Start	100	min. 42,0 cm ³ /1000 strokes	0	
1 6 Full-load speed regulation	2675	10,0-16,0 cm ³ /1000 strokes	0,75	
1 7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2 1 Timing device LDA=0,75 bar	n = rev/min mm	1200 0,2-1,0(0-1,3)	1500 (0,9-2,3)	2400 4,1-4,9(3,8-5,2)
2 2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm ²)	600 3,3-3,9		2400 7,8-8,4
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		2400 (0,75 bar) 55-138(40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	2825	max. 6,0	0,75
	2675	(9,0-17,0)	0,75
	2400	35,5-37,5 (34,2-38,8)	0,75
	1500	(42,2-46,8)	0,75
	800 *	33,5-34,5 (31,0-37,0)	0,30
	600	(24,0-30,0)	0
switch-off elektr.	400	0	
Idle stop	415	(4,0-12,0)	
	750	max. 3,0	
End stop	400	min. 20,0	
	500	max. 30,0	
2 4 Solenoid	max cut-in voltage xxx min. 10 V rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	mm
K	3,2-3,4
KF	6,3-6,6
MS	1,7-1,9
SVS	2,4
KK	21,8-23,8
KL	9,4-12,7

Observations

* Manifold-pressure
compensator stroke
= 4,2 mm
Correction at the
adjusting nut. (46)

Test Specifications

Distributor-type

Fuel-injection Pumps

VE 6/10 F 2400 L 116-1

0 460 406 019

supersedes 12.83

company: VWV

engine: 087 - T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

see VDT-W-460/

Test Bench 413

Pre-stroke setting

mm

1. Settings

	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	1,4-1,8 mm	0,75	
1 2 Supply pump pressure	1500	5,7-6,3 bar (kgf/cm ²)	0,75	
1 3 Full-load delivery without charge-air pressure	600	26,5-27,5 cm ³ /1000 strokes	0	
Full-load delivery with charge-air pressure	1500	44,0-45,0 cm ³ /1000 strokes	0,75	2,5 (3,0)
1 4 Idle speed regulation	415	6,0-10,0 cm ³ /1000 strokes	0	2,0 (3,0)
1 5 Start	100	min. 42,0 cm ³ /1000 strokes	0	
1 6 Full-load speed regulation	2675	10,0-16,0 cm ³ /1000 strokes	0,75	
1 7 Load-dependent start of delivery				

2. Test Specifications

checking values in brackets ()

2 1 Timing device LDA=0,75 bar	n = rev/min mm	1200 0,2-1,0(0-1,3)	1500 (0,9-2,3)	2400 4,1-4,9(3,8-5,2)
2 2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm ²)	600 3,3-3,9		2400 7,8-8,4
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		2400 (0,75 bar) 55-138(40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	2825 2675 2400 1500 800 * 600	max. 6,0 (9,0-17,0) 35,5-37,5 (34,2-38,8) (42,2-46,8) 33,5-34,5 (31,0-37,0) (24,0-30,0)	0,75 0,75 0,75 0,75 0,30 0
switch-off mech.	2400	0	
elektr.	400	0	
Idle stop	415 750	(4,0-12,0) max. 3,0	
End stop	400 500	min. 20 max. 30	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	6,3-6,6
MS	1,7-1,9
SVS	2,4
AK	21,8-23,8
KL	9,4-12,7

Observations

* Manifold-pressure
compensator stroke
= 4,2 mm
Correction at the
adjusting nut. (46)

2 4 Solenoid

max. cut-in voltage xxx min. 10 V
rated voltage 12V.

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 VWV 1,6 V 9

3. Edition

En

VE 4/9 F 2400 R 138

0 460 494 131

 superseded by
 company VWV
 engine 086

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/

1. Settings

	Rot speed rev/min	Settings	Charge-air press bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	1500	2,9 - 3,3 mm		
1 2 Supply pump pressure	1500	4,3 - 4,9 bar (kgf/cm ²)		
1 3 Full-load delivery without charge-air pressure	1500	33,0-34,0 cm ³ /1000 strokes		2,5 (3,0)
Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
1 4 Idle speed regulation	475	6,0-10,0 cm ³ /1000 strokes		2,0 (3,0)
1 5 Start	100	min. 35,0 cm ³ /1000 strokes		
1 6 Full-load speed regulation	2600	11,0-17,0 cm ³ /1000 strokes		
1 7 Load-dependent start of delivery	-			

2. Test Specifications

checking values in brackets ()

2 1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9 (5,8-7,2)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	600 2,2-2,8		2400 6,4-7,0
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)		2400 55-138 (40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	2800 2600 2400 1500 600	max. 3,0 (10,0-18,0) 27,5-29,5 (26,3-30,7) (31,3-35,7) 21,5-24,5 (20,0-26,0)	
switch-off elektr.	400	0	
Idle stop	475 650 1200	(4,0-12,0) max. 7,5 max. 5,0	
End stop	400 500	min. 18,0 max. 23,5	
2 4 Solenoid	max cut-in voltage test voltage	min 10,0 V rated voltage 12V.	

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-6,0
MS	1,3-1,5
SVS	2,7
* FH	1,8-2,4
A	
B	

Observations

 *operating
 stroke (KSB)

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Testoil-ISO 4113

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 REN 2,0f

2. Edition

En

VE 4/9 F 2250 R 158
0 460 494 145

Overflow temperature 45° C

superseded by 5.84
company Renault
engine: J85-706

Testoil-SO 4113

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting ~ mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1400	4,4-4,8 mm		
1.2 Supply-pump pressure	1400	4,9-5,5 bar (kgf/cm ²)		2,5 (3,0)
1.3 Full-load delivery with charge-air pressure	1400	38,0-39,0 cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	-	- cm ³ /1000 strokes		2,5(3,0)
1.4 Idle regulation	400	7,5-11,5 cm ³ /1000 strokes		
1.5 Full-speed regulation	2400	17,0-23,0 cm ³ /1000 strokes		
1.6 Start	100	min. 52,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	1400	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 2,6-3,4 (2,3-3,7)	1400 (3,9-5,3)	2000 6,7-7,5 (6,4-7,8)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	1000 3,9-4,5		2000 6,5-7,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		2250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2550 2400 2200 2100 1400 1000	max. 2,0 (16,0-24,0) 31,0-33,0 (29,8-34,2) 32,5-34,5 (31,2-35,8) (36,3-40,7) 35,3-38,3 (33,8-39,8)	
switch-off	2250	0	
Idle stop	650 400	max. 5,0 (5,5-13,5)	
End stop	320 430	min. 45,0 max. 45,0	
2.4 Solenoid	max. cut-in voltage xx min. 10 V test voltage rated voltage 12V. XXXXXXXXXX		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 3,6
AK	
XL	

Observations

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5.84

E20

E20

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 d

1. Edition

En

VE 6/12 F 1250 R 159

Overflow temperature 45° C

0 460 426 035

DHK 1688 901 016/207 bar

supersedes
company: Cummins
engine: 6 BT-590

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,3 mm \pm 0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1 1 Timing device travel	750	3,1-3,5 mm		
1 2 Supply-pump pressure	750	3,6-4,2 bar (kgf/cm ²)		
1 3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	1100	80,0-81,0 cm ³ /1000 strokes		4,0 (4,5)
1 4 Idle regulation	375	22,0-28,0 cm ³ /1000 strokes		3,5 (4,5)
1 5 Full-speed regulation	1300	54,5-62,5 cm ³ /1000 strokes		
1 6 Start	100	min. 97 cm ³ /1000 strokes		
1 7 Load-dependent port-closing	-	-		

2. Test Specifications

checking values in brackets ()

2 1 Timing device	n = rev/min mm	500 1,1-1,9 (0,8-2,2)	750 (2,6-4,0)	1100 5,0-5,8 (4,7-6,1)
2 2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,5-3,1	1100 5,1-5,7	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)	1250 55-138 (40-153)	

2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1390 1300 1250 1100 750 500	max. 1,5 (53,5-63,5) 75,0-78,0 (73,5-79,5) (77,5-83,5) 84,5-88,5 (83,5-89,5) 81,5-85,5 (79,8-87,2)	
switch-off	1250	0	
Idle stop	450 375 300	max. 1,5 (20,0-30,0) 45,0-53,0 (44,0-54,0)	
End stop	130 200	min. 97,0 max. 85,0	
2 4 Solenoid	max. cut-in voltage test voltage	xxx min. 10 V xxxxxxx rated voltage 12V.	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,1-5,3
MS	1,4-1,6
SVS	1,2
✱ XK	20,2-22,2
✱ XL	11,0-14,4

Observations

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6.84

Test Instructions 419

E21

E21

⑥

Test Specifications

Distributor-type

Fuel-injection Pumps

46

WPP 001/4 FIA 2.7 a 1

1. Edition

En

VE 3/11 F 1250 L 163

0 460 413 001

DHK: 1 688 901 020

Overflow temperature 45° C

 superseded by Fiat - /veco
 company: 8035
 engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	2,5-2,9 mm		
1.2 Supply pump pressure	800	3,8-4,4 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	800	72,7-73,7 cm ³ /1000 strokes		3,5 (4,0)
1.4 Idle regulation	350	21,0-25,0 cm ³ /1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1400	12,0-18,0 cm ³ /1000 strokes		
1.6 Start	100	min. 80 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 0,8-1,6 (0,5-1,9)	800 (2,0-3,4)	1200 5,6-6,4 (5,3-6,7)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,0-2,6		1200 5,5-6,1
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)		1250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1460 1400 1350 1250 800 500	max. 1,0 (10,5-19,5) 41,5-48,5 (40,5-49,5) 73,1-76,1 (72,0-77,2) (70,6-75,8) 61,0-64,0 (59,1-65,9)	
switch-off			
Idle stop	475 425 350	max. 1,0 2,0-8,0 (0,5-9,5) (18,5-27,5)	
End stop	150 250	min. 90 max. 65	
2.4 Solenoid	max. cut-in voltage xx min. 10 V rated voltage 12V.		

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,1-5,3
MS	1,5-1,7
SVS	4,3
K	25,0-27,0
B X L	13,4-16,8

Observations

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5.84

E22

E22

Test Specifications

Distributor-type

Fuel-injection Pumps

WPP 001/4 FIA 5,5 K

1. Edition

En

VE 5/11 F 1250 R 165

0 460 415 005

Overflow temperature 45° C

DHK: 1 688 901 020

 superseded by
 Fiat-Iveco
 company engine 8055.05.200

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04) mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	2,5-2,9 mm		
1.2 Supply pump pressure	800	3,8-4,4 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	800	70,0-71,0 cm ³ /1000 strokes		3,5 (4,0)
1.4 Idle regulation	300	16,0-20,0 cm ³ /1000 strokes		3,0 (4,0)
1.5 Full-speed regulation	1400	16,5-22,5 cm ³ /1000 strokes		
1.6 Start	100	min. 95 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 0,6-1,4 (0,3-1,7)	800 (2,0-3,4)	1200 6,0-6,8 (5,7-7,1)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	400 2,0-2,6		1200 5,6-6,2
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		1250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	1450 1400 1360 1250 800 500	max. 2,0 (15,0-24,0) 42,5-49,5 (41,5-50,5) 63,5-66,5 (62,4-67,6) (67,9-73,1) 63,0-66,0 (61,1-67,9)	
switch-off	1250	0	
Idle stop	400 350 300	max. 2,0 8,0-14,0 (6,5-15,5) (13,5-22,5)	
End stop	150 250	min. 95 max. 60	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,2-5,4
MS	1,5-1,7
SVS	4,3
A	
B	

Observations

2.4 Solenoid	max. cut-in voltage xxx min. 10 V test voltage xxx rated voltage 12V.
--------------	--

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Test Instructions

⑥

Test Specifications

Distributor-type

Fuel-injection Pumps

46

WPP 001/4 VMA 2,4 b

1. Edition

En

VE 5/11 F 1900 L 179

Overflow temperature 45° C

0 460 415 007

supersedes
company: VM Motori
engine: HR 592 HTI/9

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm \pm 0,02 (0,04)

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	1500	4,9- 5,3 mm	1,0	
1.2 Supply-pump pressure	1500	4,7- 5,3 bar (kgf/cm ²)	1,0	
1.3 Full-load delivery with charge-air pressure	1500	66,5-67,5 cm ³ /1000 strokes	1,0	3,5 (4,0)
Full-load delivery without charge-air pressure	600	39,5-40,5 cm ³ /1000 strokes	0	
1.4 Idle regulation	420	20,5-24,5 cm ³ /1000 strokes	0	3,5 (4,0)
1.5 Full-speed regulation	2060	36,0-42,0 cm ³ /1000 strokes	1,0	
1.6 Start	100	min. 50,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-			

2. Test Specifications

checking values in brackets ()

2.1 Timing device LDA = 1,0 bar	n = rev/min mm	1000 1,5-2,3 (1,2-2,6)	1500 (4,4-5,8)	1900 7,1-7,9 (6,8-8,2)
2.2 Supply pump LDA = 1,0 bar	n = rev/min bar (kgf/cm ²)	600 1,7-2,3		1900 6,0-6,6
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138 (40-153)		1900 (1,0 bar) 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)
End stop	2200	max. 3,0	1,0
	2160	2,0- 8,0 (0,5- 9,5)	1,0
	2060	(34,5-43,5)	1,0
	1900	59,0-62,0 (57,8-63,2)	1,0
	1500	(64,3-69,7)	1,0
	700 *	51,0-52,0 (48,1-54,9)	0,3
	600	(36,6-43,4)	0
switch-off			
Idle stop	420	(18,0-27,0)	
	500	4,5-10,5 (3,0-12,0)	
	650	max. 2,0	
End stop	350	min. 50,0	
	450	max. 55,0	
2.4 Solenoid	max. cut-in voltage	xxx min 10 V	
	test voltage	xxxxxxx rated voltage 12V.	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	-
KF	5,9-6,1
MS	0,9-1,1
SVS	3,2
A	
B	

Observations

Electrical shutoff device =
pushing electromagnet
*Manifold-pressure
compensator stroke
= 4,5 mm
Correction at the
adjusting nut (46).

BOSCH

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04.84

E24

E24

⑥

Test Specifications

Distributor-type

Fuel-injection Pumps

En

46

WPP 001/4 FIA 5,5 o

1. Edition

VE 6/11 F 1250 R 181

Overflow temperature 45° C

0 460 416 036

DHK 1 688 901 020

supersedes
company: Fiat-Iveco
engine: 8065.06.200

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre stroke setting - mm

see VDT-W-460/..

Test ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm ²)	Difference in delivery cm ³
1.1 Timing device travel	800	2,6-3,0 mm		
1.2 Supply-pump pressure	800	4,4-5,0 bar (kgf/cm ²)		
1.3 Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
Full-load delivery without charge-air pressure	800	62,5-63,5 cm ³ /1000 strokes		3,5 (4,0)
1.4 Idle regulation	350	13,0-17,0 cm ³ /1000 strokes		3,0 (4,0)
1.5 Full-speed regulation	1350	33,0-39,0 cm ³ /1000 strokes		
1.6 Start	100	min. 95,0 cm ³ /1000 strokes		
1.7 Load-dependent port-closing	-	-		

2. Test Specifications

checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 0,8-1,4 (0,4-1,8)	800 (2,1-3,5)	1000 4,8-5,4 (4,4-5,8)	1250 5,4-6,2 (5,1-6,5)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 3,1-3,7		1250 6,3-6,9	
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138 (40-153)		1250 55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press bar (kgf/cm ²)
End stop	1450 1400 1350 1300 1250 800 500	max. 2,0 2,5-8,5 (1,0-10,0) (31,5-40,5) 49,5-56,5 (48,5-57,5) 52,7-55,7 (51,5-56,9) (60,3-65,7) 57,7-60,7 (55,8-62,6)	
switch-off			
Idle stop	450 400 350	max. 1,5 4,5-10,5 (3,0-12,0) (10,5-19,5)	
End stop	150 250	min. 95,0 max. 60,0	
2.4 Solenoid	max. cut-in voltage test voltage	xxx min. 10 V xxxxxxx rated voltage 12V.	

3. Dimensions

for assembly
and adjustment
mm

Designation	
K	3,3
KF	5,2-5,4
MS	1,5-1,7
SVS	4,3
A	
B	
Observations	

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6.84

F1

FA

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 1 c 1

3. Edition

En

Testoil-ISO 4113

PES 2 A 80 D 310/3 RS1322 EP/RSV..2011DL (1-2)
 PES 3 A 75 ..1185, 1320 EP/RSV 325-1000 A8B733D(3)
 PES 4 A 75 ..1183 EP/RSV 325-1400 A8B742D(4)
 PES 6 A 75 ..1197 EP/RSV..694D, 742D (5-6)
 PES4A80..1300, PES3A80..1324, PES6A75..1326 (7)

supersedes 5.78

company K H D

engine F.. L912

Type designations
and notes, page 5

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,90-2,00}{(1,85-2,05)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
		7,50			80	
1	2	3	4	2	3	6
1000	12	5,2 - 5,6	0,4	9	3,1 - 3,5	
	9	2,7 - 3,5		6	0,1 - 0,6	
200	9	0,7 - 1,4		9	0,6 - 1,3	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

325-1400 A8B2011D (1)

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.66	1400	12,0	without auxiliary spring			ca.20	325	5,5	1400	0
	1430	8,5					200	19 - 21		
	1460	4,8					325	5,2-5,8	600	0,9-1,
	1440	ca. 10,5					450	2,7-4,1		
⑤	1490	ca. 4,0	with auxiliary spring				660	0 - 1,5		
	1600	0,3 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev./min						
rev/min	cm ³ /1000 strokes	rev./min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(1) 1400	60,0 - 61,0 (58,5 - 62,5)	1440-1450*	750	54,5 - 56,5 (52,5 - 58,5)			325	5,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.78

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325-900 A7B2011D (2)

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.	900	16,0	without auxiliary spring			ca.26	325	6,0	880	0
	950	10,0					150	19 - 21		
	980	4,0					325	5,7-6,3		
	900	ca. 11,6					450	1,5-3,7		
⑤	1000	ca. 4,0	with auxiliary spring				550	0 - 1	400	0,9-1,1
	1080	0,3 -1,5								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 900	55,0 - 56,0 (53,5 - 57,5)	940-950 *	⑥a				325	6,0

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

325-1000 A8B733D (3)

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.48	1000	16,0	without auxiliary spring			ca.19	325	5,5	1000	0
	1060	10,0					100	19 - 21		
	1110	4,0					325	5,2-5,8		
	1000	ca. 9,0					400	1,2-3,0		
⑤	1080	ca. 4,0	with auxiliary spring				500	0 - 1	500	0,9-1,1
	1200	0,3 -1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(3) 1000	46,0 - 48,0	1040-1050 *					325	5,5

Checking values in brackets

* 1 mm less control rod travel than col 2

The numbers denote the sequence of the tests

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1400	12,0	without auxiliary spring			ca. 20	325	5,5	1400	0
	1430	8,5					200	19 - 21		
	1460	4,8					325	5,2-5,8		
②a	1420	9,2-10,4	with auxiliary spring				450	2,8-4,1	1000	0,2-0,4
	1500	2,0- 3,4					660	0 - 1		
	1580	0,3- 1								
									500	0,9-1,1

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(4) 1400	54,5 - 56,5	1430-1440*	800	49,5-52,5				325	5,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

325-1150 A8B694D (5)

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 54	1150	12,0	without auxiliary spring			ca. 21	325	5,5	1150	0
	1190	7,8					200	19 - 21		
	1210	5,0					325	5,2-5,8		
②a	1130	8,0-9,6	with auxiliary spring				400	1,6-3,5	450	0,9-1,1
	1200	5,0-7,5					500	0 - 1		
	1210	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(59) See page 5!		1160-1170						325	5,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1400	12,0	without auxiliary spring			ca. 20	325	5,5	1400	0
	1430	8,5					200	19 - 21	1000	0,2-0,4
	1460	4,8					325	5,2-5,8	500	0,9-1,1
⑤	1420	9,2-10,4	with auxiliary spring				450	2,8-4,1		
	1500	2,0- 3,4					660	0 - 1		
	1580	0,3- 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	9
(6) 1400	58,0 - 60,0	1430-1440*	800	51,0 - 54,0			325	5,5
			⑥a					

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
⑤										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full load stop		⑥ Rotational speed limit	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

1. Type designations and power outputs

Engine Pump	Output at speed	- Manufacturer Governor	Item as or
<u>F 2 L 912 - 30 kw (38HP) at 2400 min.</u>			
PES 2 A 80 D 310/3 RS 1322		EP/RSV 325-1400 A 8 B 201 DL	1
<u>F 2 L 912 - 18 kw (25HP) at 1800 min.</u>			
PES 2 A 80 D 310/3 RS 1322		EP/RSV 325-900 A 7 B 2011 DL	2
<u>F 3 L 912 - 27 kw (37HP) at 2000 min. - Fendt</u>			
PES 3 A 75 D 410/3 RS 1185		EP/RSV 325-1000 A 8 B 733 DL	3
<u>F 4 L 912 - 54 kw (73HP) at 2800 min. - Berliet</u>			
PES 4 A 75 D 410/3 RS 1183		EP/RSV 325-1400 A 8 B 742 DL	4
<u>F 6 L 912 -</u>			
PES 6 A 75 D 410/3 RS 1197		EP/RSV 325-1150 A 8 B 694 DL	5 - KHD 1 c
<u>F 6 L 912 - 81 kw (110HP) at 2800 min. - Berliet</u>			
PES 6 A 75 D 410/3 RS 1197		EP/RSV 325-1400 A 8 B 742 DL	6
<u>F 4 L 912 -</u>			
PES 4 A 80 D 410/3 RS 1300		EP/RSV..	7 - KHD 1 c
<u>F 3 L 912 -</u>			
PES 3 A 80 D 410/3 RS 1324		EP/RSV..	7 - KHD 1 c
<u>F 6 L 912 -</u>			
PES 6 A 75 D 410/3 RS 1326		EP/RSV..	7 - KHD 1 c

2. Notes

The remarks given under (7) and the governors (Items 1..6) are also used with the injection pumps and governors listed on KHD 1 c. The full-load deliveries for the possible combinations are given on KHD 1 c on pages 7 - 18 and on the present pages 1 - 4.

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 DAI 5,7d

3. Edition

En

PES 6 A 80 C 410 RS 2085 RQV 300-1425 AA 538 DL
D AB 538 DL
Komb.-Nr. 0 400 846 177

supersedes 3.70

company: Daimler-Benz

engine: OM 352 (126 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0	0,2(0,35)			
200	6	2,2 - 3,0				
	15	11,5 - 12,8				
	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

Test oil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1425	16,0-19,3	-	-	-	ca. 10	100	7,0-8,0	250	0,9-1,1
	1450	14,6-18,2					250	5,5-7,0	640	3,6-3,9
	1550	8,2-13,3					400	3,4-5,2	1040	5,2-5,3
	1650	1,3-8,0					500	2,5-3,7	1425	7,8
	1750	0 - 2,5					600	1,4-2,8		
	1800	0				3a	770	0		

Torque control travel a = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1400	56,5-57,5 (55,0-59,0)	1445-1455*	1000	54,0-56,0 (52,5-57,5)	100	13,2-13,8 mm RW	1400	0	
			800	52,5-54,5 (51,0-56,0)			1200	0-0,2	
			500	49,5-52,5 (48,0-54,0)			1000	0,3-0,5	
							800	0,6-0,8	
							500	0,6-0,8	

Checking values in brackets

* 1 mm less control rod travel than col 2
4.84

F8

F8

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7 p 1

1. Edition

En

PES 6 A 80 D 410 RS 2085 RSV 350-1300 A 1 B 728 DL
Komb.-Nr. 0 400 876 217

superseded by Daimler-Benz
company OM 352
engine 105 FS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	9,0	5,5-6,0	0,4			
1000	6,0	2,3-3,0				
200	6,0	1,3-2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel 10	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	mm 11
ca. 74	1300 16,0 1350 10,7 1390 5,4		without auxiliary spring			ca. 27	350 6,2		1300 0	
ca. 70	1310 ca. 7,7 1360 ca. 3,4 1450 0,3-1,0						200 19,0-21,0 350 5,9-6,5 500 1,0-3,5 620 0-1,0		400 1,0-1,2	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40° C (104° F) rev/min 1		6 Rotational speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		4a Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7			
1280	48,0-49,0 (46,5-50,5)	1320-1330*	1100 700	45,0-48,0 (43,5-49,5) 44,5-46,5 (43,0-48,0)		100	ca. 79	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 MAN 9,7 L2

4. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2108

EP/RSV 200-1100 A1 B 607L
200-1050 A1B 607 L
450-1050 A1B 607 L
A1C 607 L

superseded 83

company MAN - RABA

engine D 2156 ..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	8,4 - 9,4				
	6	4,0 - 5,0				
	15	16,6 - 17,8				
200	9	5,9 - 6,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200-1100

① Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4			④ Lower rated speed Control lever deflection in degrees 7			③ Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 3					rev/min 6	Control rod travel mm 9		rev/min 10	
ca. 60	1100 16,0 1150 11,0 1180 6,4		without auxiliary spring			ca. 24	200 6,0		1080	0
②a	1140 10,4-12,8 1180 4,0-8,4 1300 0,3-1,0						100 19 - 21 200 5,7-6,3 300 2,2-4,1 450 0 - 1		250	1,2 - 1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F) rev/min 1		⑥ Rotational speed limit Note changed to) rev/min 3		③a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		⑤ Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7			
1100	93,5 - 96,4	1140-1150*				100	min. 20,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.84

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 60	1050	16,0	without auxiliary spring			ca. 26	200	6,0	1030	0
	1120	9,8					100	19,0-21,0	250	1,2-1,8
	1160	5,0	with auxiliary spring				200	5,7-6,3		
	1120	8,0-11,8					300	2,0-3,9		
②a	1180	2,0-4,5					420	0 - 1,0		
	1260	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm³/1000 strokes 2	rev/min 3		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	93,5-96,4	1140-1150*	-	-	-	100	min 20,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

450-1050

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 22	450	5,5	1050	12,6+0,1
	x = 3,5						100	min.19,0	500	12,6+0,2
							450	5,9-6,1	300	13,4+0,6
ca. 47	11,6	1090-1100					540-600	= 2,0		
②a	4,0	1095-1125					650	max. 1,0		
	1285	0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm³/1000 strokes 2	rev/min 3		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1050	133,5-139,5 (131,5-137,5)	1090-1100*	750	133,5-137,5 (131,5-139,5)	100	19,0-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

Test Specifications Fuel Injection Pumps (1A) and Governors

40
WPP 001/4 MAN 9,7 1 5
2. Edition

PES 6 A 95 D 410 RS 2108 RSV550-1100 A 1 B 607 L
A 1 C 607 L

Komb.-Nr. 0 400 876 235

En
superseded 7.83
company MAN
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pre stroke (1,65-1,85) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1100	10,2±0,1	9,4-9,5	0,3(0,6)			
550	5,9-6,1	1,6-2,2	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	mm	10	mm
loose	800	0,3-1,0	-	-	-	ca.29	550	5,5	1100	10,2-10,3
	X = 2,25						100	min.19,5	500	10,2-10,4
ca.56	9,2	1140-1150					500	5,9-6,1	370	11,3-11,9
2a	4,0	1155-1185					660-720	= 2,0		
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to				Idle			
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1100	94,0-95,0 (92,0-97,0)	1140-1150*	-	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

F12

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5.84

F12

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 9,7 1 3

En 3. Edition

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2108 R

RSV 550-1100 A 1 B 607 L

supersedes 5.81

Komb.-Nr. 0 400 876 304

A 1 C 607 L

company MAN-RABA

engine D 2356 HM6

50 kW (204 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,65-1,85) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,7+0,1	11,5 - 11,7	0,35(0,6)			
550	5,9-6,1	1,1 - 1,7	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca. 25	550	6,0	1100	12,7+0,1
	X	= 3,25					100	min. 19,5	400	12,7+0,2
							550	6,4-6,6	250	13,9+0,6
							725	max. 1,0		
⑤ ca. 50	1120-1150	= 11,7					625-685	2,0		
	1170-1200	= 4,0								
	1330	= 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F)		Note changed to ... rev/min							
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	5	4	5	6	7	8	9
1100	114,5-116,5 (112,5-118,5)	1140-1150*	700	110,0-113,0 (108,0-115,0)	100	19,0-21,0 mm RW		-	-
			500	max. 112,0 (max. 114,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MAN 9,7 o2

2. Edition

En

PES 6 A 95 D 410 RS 2108
Komb.-Nr. 0 400 876 203

EP/RSV 250-1100 A 1 B 692 D

superseded 5.84
company MAN
engine D 2156 HM 6 HDK
MAN-Nr. 1-7624

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,7 - 1,8
Port closing at prestroke (1,65-1,85) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	9,0	7,5-8,0	0,5			
200	6,0 6,0	3,2-4,2 0,5-1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel mm 11	
Control rod travel mm 2	Control rod travel mm rev/min 2		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	
ca. 59	1100 1150 1200	16,0 11,5 6,3	without auxiliary spring			ca. 23	250	7,5	1080	0
	1160 1200	9,0-12,0 4,6- 7,9					100 250	19 - 21 7,2- 7,8	900 500	0,2 - 0,4 0,4 - 0,6
2a	1350	0,3- 1,0	with auxiliary spring				400 650	3,5- 5,3 0 - 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to 1 rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		Control rod travel mm 9	
1100	110,0 - 112,0 (109,0 - 113,0)	1140-1155*	700 500	110,0 - 113,0 (109,0 - 114,0) max. 114,0	100	17,7-18,3 mm RW	250	7,5	

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

F14

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F14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MAN 9,7 o1

2. Edition

En

PES 6 A 95 D 410 RS 2108 W
Komb.-Nr. 0 400 876 200

EP/RSV 250-1100 A 1 B 1071

superseded 3.84
company MAN
engine D 2156 HMN 5 D
MAN-Nr. 1-7524

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 - 1,8 mm (from BDC)
(1,65-1,85)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	9,0	7,5 - 8,0	0,5			
	6,0	3,2 - 4,2				
200	6,0	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Ca. 59	1100	16,0	without auxiliary spring			ca. 25	250	6,0	1100	0
	1150	11,4					100	19 - 21	300	1,2 - 1,8
	1190	6,0					250	5,7 - 6,3		
			with auxiliary spring				350	1,7 - 3,6		
2a	1160	8,0-11,0					450	0 - 1,0		
	1250	1,3-3,2								
	1350	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40 °C (104 °F)		Note changed to) rev/min							
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9	
1	2								
1100	120,5-123,5 (119,5-124,5)	1140-1155*	500	max. 118,5	100	min. 18,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

F15

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FAS

②

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MAN 7,2 f 1

2. Edition

En

Testoil-ISO 4113

 PES 6 A 85 C 412 RS 2139
 ..D..

RQ 250/1350 AB 645D

supersedes 8.78

company M A N

engine D 0836 HMN 10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\frac{1,50-1,60}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,4 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,7-16,3	550	16,0	1370 1400 1430 1490	14,6-15,0 6,5-14,4 0 -10,0 0	560	0	150 250 350 460	6,7-8,1 4,7-6,8 1,9-4,0 0	800 1000 1200	15,8-16,0 15,3-15,6 15,0-15,2

Torque control travel
on flyweight assembly dimension a

0,3

mm

Speed regulation At $1390 - 1405 = 1,5$ 1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7
1350	74,5 - 76,5 (72,5 - 78,5)		800	74,0 - 77,0 (72,0-79,0)	100 250	21 mm RW 6,0 mm RW

Checking values in brackets

5.84

F17

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F47

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 7,2 F 2

1. Edition

En

PES 6 A 85 D 410 RS 2139 RQ 250/1250 AB 797 DL

C

Komb.-Nr. 0 400 846 254

supersedes -

company MAN

engine D0846 HM 10/20
HMN 10/80/81
118 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,5-1,6
(1,45-1,65)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,0+0,1	7,1-7,2	0,3(0,45)			
250	6,8-7,0	0,8-1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	9,0 4,0 1450	1295-1310 1325-1355 0-1,0	250	6,8	100 250 365-405 450	min.8,3 6,7-6,9 = 2,0 max.1,0	1250 500 800 1000	10,0-10,1 10,8-10,9 10,8-10,9 10,5-10,7

Torque-control travel

0,5

on flyweight: assembly dimension a =

mm

1295-1310 min⁻¹

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1250	70,5-71,5 (68,5-73,5)	-		800 500	72,0-75,0 (69,5-77,5) 68,0-72,0 (65,5-74,5)	100 250	120,0-130,0 (117,0-133,0) 6,8 mm RW

Checking values in brackets

5.84

F18

F18

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 h 1

1. Edition

En

PES 6 A 80 C 410 RS 2194 RQV 300-1425 AA 535 DL
D AB 535 DL

supersedes

company Daimler-Benz

engine OM 352 (126 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
1000	9	5,5 - 6,0	0,2 (0,35)			
200	6	2,2 - 3,0				
	15	11,5-12,8				
	6	1,3-2,2				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1425	16,0-19,3	-	-	-	ca. 10	100	7,0-8,0	250	0,9-1,1
	1450	14,6-18,2					250	5,5-7,0	640	3,6-3,9
	1550	8,2-13,3					400	3,4-5,2	1040	5,2-5,3
	1650	1,3-8,0					500	2,5-3,7	425	7,8
	1750	0 -2,5					600	1,4-2,8		
	1800	0					770	0		

Torque control travel a = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1400	56,5-57,5 (55,0-59,0)	1445-1455*	1000	54,0-56,0 (52,5-57,5)	100	13,2-13,8 mm RW	1400	0	
			800	52,5-54,5 (51,0-56,0)			1200	0-0,2	
			500	49,5-52,5 (48,0-54,0)			1000	0,3-0,5	
							800	0,6-0,8	
							500	0,6-0,8	

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.84

F19

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F19

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 OMB 4,4 c 2

1. Edition

En

PES 4 A 90 D 410 RS 2195 Z RQ 250/1200 AB 849 L

Komb.-Nr. 0 400 844 063

supersedes
company OM-Brescia
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at p.e. stroke (2, 15-2, 25) (2, 10-2, 30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,8+0,1	6,8-6,9	0,3(0,45)			
250	8,4-8,6	-	-			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12
650	15,6-16,4	650	16,0	9,8 4,0	1245-1260 1335-1365	250	6,0	100 250 425-465=2,0	min.7,5 5,9-6,1	-	-

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1245-1260 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery idle speed rev/min 6	
	cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		Control rod travel mm 7
1200	68,0-69,0 (66,0-71,0)	-	-	800	58,0-62,0 (56,0-64,0)	100	16,3-17,0 mm RW

Checking values in brackets

6.84

F20

F20

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 OMB 4,4 c

3. Edition

En

PES 4 A 90 ^C 410 RS 2195

RQ 275/1300 AB 856 (1)

RQV 250-1300 AB 803 D (2)

RQV 250-1200 AB 855 D (3)

supersedes 6.83

company: OM Brescia

engine CO 3 D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,8 - 6,3	0,4	9	5,1 - 5,5	
	6	2,5 - 3,4		6	1,6 - 2,6	
	15	13,6 - 14,3		-	-	
200	9	3,8 - 4,6		9	1,9 - 2,9	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 275/1300 AB 856 (1)

Checking of slider PRG check		Full-road speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	15,7-16,3	700	16,0	1320	15,6-16,0	640	0	100	6,6-8,1	-	-
				1360	11,8-15,0			250	5,1-7,2		
				1460	0 - 8,0			400	2,0-4,2		
				1560	0			540	0		

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
(1)		500			100	min. 16,5
1300	82,0-84,0		800	77,5 - 80,5		mm RW

Checking values in brackets

5.84

F21

F21

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B. Governor Settings

RQV 250-1300 AB 803 D (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1300 1400 1500 1630	15,0-17,6 8,3-13,2 0,8-8,0 0	-	-	-	ca. 10	100 200 300 400	5,8-8,0 4,4-6,6 0,8-4,0 0 -1,3	380 1300	3,2-3,6 8,3
						(3a)				

Torque control travel a = 0,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4a	4	5	6	7	8	9
(2)				1000	73,0-75,0 (71,0-77,0)	100	ca. 17,0	1300	0
1300	74,5-75,5 (72,5-77,5)	1320*		600	65,0-67,0 (63,0-69,0)		mm RW	600	0,1-0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113**B. Governor Settings**

RQV 250-1200 AB 855 D (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1280 1600	15,0-17,6 0	-	-	-	ca. 10	120 250 350 450 610	6,2-8,0 3,7-6,0 0,5-3,0 0 -1,2 0	400 1280	3,2-3,7 8,2
ca. 62	1200 1300 1400 1550	15,0-17,6 9,0-13,2 1,2-8,3 0				(3a)				

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min		rev/min	Control rod travel mm
1	2	3	4a	4	5	6	7	8	9
(3)				800	74,5-77,5 (72,5-79,5)	100	min. 16,0	-	-
1200	79,5-80,5 (77,5-82,5)	1230-1240*					mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 o 1
4. Edition

En

PES6A90D410RS2293

RSV575-1250A1B618L

supersedes 5.82

company Daimler-Benz

engine OM 352

88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1230	10,5+0,	6,1-6,2	0,3(0,45)			
575	6,4-6,6	1,1-1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.28	575	,5	-	-
	X=5,0						100	min.19,0		
							575	6,4-6,6		
							605-635	=2,0		
Ca.66	9,5	1250-1260						**		
⑤	4,0	1275-1295								
	1 50	0,3-1,7								

** Set idle -speed auxiliary spring at 2.0 mm control-rod travel
then 1/2 turn back.
The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note changed in rev./min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1230	61,0-62,0 (59,0-64,0)	1250-1260*	-	-	-	100	71,0-81,0 (68,0-84,0) =14,7-15,1 mm RW	-	-

Checking values in brackets

: 1 mm less control rod travel than col. 2

5.84

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 n 10

2. Edition

En

PES 6 A 90 D 410 RS 2293 RQV 300-1425 AB 780 L (1)

781 L (2)

925 L (3)

superseded 1.82

company Daimler-Benz

engine OM 352

96 kW (131 PS)

Komb.-Nr. 0 400 846 232 (1)

0 400 846 233 (2)

0 400 846 355 (3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,10-2,30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1400	9,7-9,8	6,2 - 6,3	0,3(0,45)			
300	7,5-7,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

.. 780 L , ..781 L u. ..925 L

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	15,2-17,8	-	-	-	ca. 14	100	min. 9,1	250	0,6-1,0
ca. 59	8,7	1455-1465					300	7,5-7,7	640	3,2-3,6
	4,0	1550-1580					875	max. 1,0	1035	5,5-5,8
	1700	0 - 1,0				370-520			1425	8,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	61,5 - 62,5 (59,5-64,5)	1455 - 1465*	-	-	100	71,0-81,0 (68,0-84,0) = 13,9-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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F24

①

Test Specifications

Fuel Injection Pumps ①

and Governors

WPP 001/4 MB 5,7 x 2

3. Edition

En

PES G A 90 D 410 RS 2293

RQV 300-1400 AB 880 DL

supersedes 2.82
 company Daimler-Benz
 OM 352
 engine 88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1380	9,7-9,8	6,0 - 6,1	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	15,2-17,8	-	-	-	ca. 14	100	min. 9,2	250	0,9-1,1
ca. 59	8,7 4,0 1650	1420-1430 1510-1540 0 - 1,0				375-525	300	7,6-7,8	630 1020 1400	3,2-3,6 5,6-5,8 8,2

Torque control travel a = 0,65 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1380	53,5-60,5 (57,5-62,5)	-	600 1000	48,0-51,0 (46,0-53,0) 54,5-57,5 (52,5-59,5)	100	13,8-14,2 mm RW	1380 600 885 1160	9,7+0,1 10,3+0,1 10,1+0,2 9,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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Test Specifications Fuel Injection Pumps and Governors

Testoil-ISO 4113

PE 10 A 90 D610/4 LS2243	RQ 250/1250 AB790D	(1)
PE 8 A 85 D 410 LS2477	RQV 300-1325 AB937D	(2)
PE 6 A 85 D 410 LS2521	RQV 300-1325 AB937D	(3)
Please note instructions on sheet 3 - 4	RQV.., EP/RZU..	(4)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes - (9.77)

company K H D

engine F.. L 413 (L)

(L)-(F 10 - 270 PS - 1)

(F 8 - 232 PS - 2)

(F 6 - 170 PS - 3)

(zu KHD 1 b - 4)

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,50-1,60}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	9	4,9 - 5,5	0,4	9	5,8 - 6,3	
	6	1,3 - 2,1		6	2,5 - 3,4	
200	9	3,9 - 4,4		9	3,2 - 4,1	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 250/1250 AB790D (1)

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
600	15,6-16,4	600	16,0	9,0	1295-1310	250	6,0	100	min. 7,5	1250	10,0
1270	14,3-14,7			4,0	1325-1355			250	5,9-6,1	800	10,6
1400	0 - 1							345	385 = 2,0	500	10,9
								450	0 - 1		

Torque control travel on flyweight assembly dimension a

0,4 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /100 strokes
1	2	3	4	5	6	7 mm RW
1250	72,5 - 73,5 (70,5 - 75,5)	500	800	70,5 - 73,5 (68,5 - 75,5)	100	14,0-15,0
			500	65,0 - 69,0 (63,0 - 71,0)		

Checking values in brackets

./.

B. Governor Settings

RQV..937D mit 2477 (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1325	13,7-16,8	-	-	-	ca. 12	100	6,2-7,7	1325	8,7
	1400	5,8-11,8					250	5,0-6,5		
	1450	0 - 8,0					400	2,8-4,2	1300	0
	1540	0					600	1,5-2,9		
						(3a)	830	0	600	0,6-0,8

Torque control travel a = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	mm RW	8	9
1325	78,0 - 80,0 (76,0 - 81,0)	1355-1365	1000	76,0 - 79,0 (74,0 - 81,0)	100	14,7-15,7			
			800	75,5 - 78,5 (73,5 - 80,5)					
			100-200 (80-220)						

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

RQV..937D mit 2521 (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1325	13,7-16,8	-	-	-	ca. 12	100	6,2-7,7	1325	8,7
	1400	5,8-11,8					250	5,0-6,5		
	1450	0 - 8,0					400	2,8-4,2	1300	0
	1540	0					600	1,5-2,9		
						(3a)	830	0	600	0,6-0,8

Torque control travel a = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
2		4a		5a		6		5	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min		rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1325	78,0 - 79,0 (76,0 - 81,0)	1365-1735	1000 800	76,0 - 79,0 (74,0 - 81,0) 75,5 - 78,5	100	ca.15 mm RW			
					100-200 (80-220)			./.	

Checking values in brackets

* 1 mm less control rod travel than col 2

RQV..., EP/RZU.. (4)

Listed below are the extensions and modifications which have resulted since the 1st edition of KHD 1 b (8.73). The below-listed governors and the pumps given on Page 1 may be combined with the governors/pumps listed in KHD 1 b; the full-load deliveries - ordered by engine power and engine speed - are given on KHD 1 b, Pages 17 - 22 and on the pages of this list.

Extensions and modifications to Pages 2-3 of KHD 1 b

RQ and RQV governors - ordered by code numbers

Designation	P R G	Corres. V-No.	Test like
<u>to 4</u> RQV 300-1000 AB688DL	1 428 101 098		
300-750	071	as 300-800	
300-1325 (-1300)	118		Item 29
<u>to 21</u> RQV 250-1150 AB776KL	1 428 101 103	(V 10629K)	Item 41
RQV 250-1250 AB777KL	104	(V 10630K)	Item 35
RQV 250-1325 AB778KL	105	(V11348K, 11997K)	Item 21 p.5
<u>to 25</u> RQ 250/1250 AB790DL	1 428 110 205	V13561	
<u>to 27</u> RQV 250-1325 AB792DL	117	(V10752D,10987D)	Mod. Item 27 p. 5
<u>to 37</u> RQV 250-1250 AB835KL	1 428 101 129		Correction
<u>to 38</u> RQV 250-1250 AB840KL	1 428 101 104		Correction
40. RQV 250-1250 AB872KL	1 428 101 104	V 11508K	Item 35
41. RQV 250-1150 AB877KL	1 428 101 103	V 11418K	Item 41
42. RQV 300-800/1325AB885DL	1 428 101 142	V12215D (12011D,13605)	Item 42
43. RQV 300-985/1325AB886DL	1 428 101 109	(V 11954D)	Item 22
44. RQV 300-1325 AB887DL	1 428 101 117	(V11955D)	Item 27
45. RQV 300-800/1325AB888DL	1 428 101 142		Item 42
46. RQV 300-1200 AB889DL	1 428 101 146	(V 11987D)	Item 46
47. RQV 300-750 AB890DL	1 428 101 147	V 11872D	Item 47
RQV 300/525-750 AB890DL	1 428 101 164	PRG Mod. (12125D)	Item 47
48. RQV 300-1325 AB924DL	1 428 101 152		Item 48
49. RQV 300-1325 AB937D,938D	1 428 101 118		Item 29
50. RQV 300/650-900 AB939DL	1 428 101 156	V11873D	Item 50
300/800-1150	1 428 101 157	V11875D	Item 50
51. RQV 300-1150 AB950KL	1 428 101 126	V 11014K	Item 36
52. RQV 300-1250 AB958L	1 428 101 160		Item 52
52. RQV 300-1150 AB962L	1 428 101 172		Item 53
54. RQV 300-1250 AB1005DL	1 428 101 088/III		Item 54

Additions to page 5 of KHD 1 b - continued - KHD 1 b 1

RQ- and RQV governors - ordered according to V no. -

V no.	released as	V no.	released as
RQV 250-1150 ABV 10629K	AB 776 KL	RQV 300-800/1325 ABV 12011D	AB 885 DL
RQV 250-1250 ABV 10630K	AB 777 KL	RQV 300-1250 ABV 12076	AB 896 L
RQ 250/1250 ABV 10762D	AB 791 DL	RQV 300/525-750 ABV 12125D	(AB890DL)
RQV 300-1325 ABV 10816D	AB 800 DL	RQV 300-1200 ABV 12126D	AB 915 DL
RQV 300-985/1325 ABV10882D	AB808 DL	RQV 300/650-900 ABV12199D	(AB939DL)
RQV 300-1325 ABV 11009D	(AB 809DL)	RQV 300/800-1150 ABV12200D	(AB939DL)
RQV 300-1150 ABV 11014D	AB950 KL	RQV 300/800-1325 ABV12215D	(AB885DL)
RQV 300-1150/1325 ABV11310D see page 8			
RQV 250-1150 ABV 11418K	AB 877 KL	RQ 300/1250 ABV 12216D	AB 926 DL
RQV 250-1250 ABV 11508K	AB 872 KL	RQV 300-1250 ABV 12217D	AB 927 DL
RQ 300/1325 ABV 11708K	AB 929 L	RQ 300/1250 ABV 12241	AB 929 L
RQ 300/1325 ABV 11709	AB 930 L	RQV 300-1250 ABV 12248D	AB 788 DL
RQV 300-750 ABV 11872 D	AB 890 DL	RQV 300-1325 ABV 12249D	AB 800 DL
RQV 300/650-900 ABV11873D	AB 939 DL	RQV 300-1250 ABV 12252	AB 897
RQV 300/800-1150 ABV11875D	AB 939 DL	RQV 300-1200 ABV 12259D	(AB820 DL)
RQV 250-1325 ABV 11945D	see page 8	RQV 300-750 ABV 12262	(AB 890 DL)
RQV 300-985/1325 ABV 11954D	AB886DL	RQV 300/800-1150 ABV 12264	(AB 939 DL)
RQV 300-1325 ABV 11955D	AB 887 DL	RQV 300/800-1325 ABV 12271	(AB 888 DL)
RQV 300-1075 ABV 11960D	AB 898 DL	RQV 300-985/1325 ABV 12630	(AB783 DL)
RQV 300-1150 ABV 11961D	AB 898 DL	RQV 300-1150 AB12744	(AB 688 DL)
RQV 300-1250 ABV 11962D	AB 898 DL	RQV 300-1325 ABV 12826	(AB 800 DL)
RQV 300-1200 ABV 11987D	AB 889 DL	RQV 300-1250 ABV13475D	AB 1005 DL
RQV 300-1325 ABV 11997K	(AB 778 KL)	RQ 250/1250 ABV 13561D	AB 790 DL

Notes on EP/RZU

Test specifications page 9 - 10

Note test instructions WPP 001/4, Suppl. 4. The control-rod travel of 14.0 mm given in Column 3 is reduced in accordance with the previously set full-load delivery if the latter yielded a smaller control-rod travel.

Note on page 3 - 4:

Released as - without parentheses - means: V no. is released as .. .

Released as - in parentheses - means: the PRG part can be set in accordance with the test specifications of the governor in parentheses.

Setting values for the governor RQV..

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

zu 4 RQV 300-1000 AB688 DL

Torque-control travel Maß a = 0,9 mm

ca. 63	1000	15,0-18,0	-	-	-	ca. 12	100	6,4-8,0	1000	8,3
	1030	11,0-15,0					300	4,5-6,1		
	1060	7,0-12,0					450	2,5-3,8	1000	0
	1100	0 - 7,8					620	0 - 1,1		
	1170	0					670	0	500	0,8-1,0

zu 21 RQV 250-1325 AB778KL

ca. 66	1325	15,0-17,7	-	-	-	ca. 10	200	6,8-8,0	250	0,5-1,6
	1400	10,0-14,0					300	2,8-5,1	400	2,2-2,9
	1470	5,2-10,4					400	2,0-3,4	700	4,2-4,6
	1530	0 - 7,3					560	0 - 1,1	1325	8,3
	1660	0					610	0		

zu 27 RQV 250-1325 AB792DL
RQV 300-1325 AB887DL

Torque-control travel Maß a = 0,8 mm

ca. 68	1325	12,0-15,8	-	-	-	ca. 12	200	6,7-8,2	300	0,4-1,4
	1400	4,6-11,0					300	5,1-7,3	600	5,0-5,4
	1460	0 - 6,8					400	2,6-4,9	1325	8,6
	1560	0					530	0	1300	0
									700	0,8

Pos. 36 - RQV 300-1150 AB950KL

ca. 66	1150	15,0-17,6	-	-	-	ca. 15	150	9,4-10,3	250	0,6-1,8
	1210	10,8-14,6					250	6,5-9,0	350	2,2-2,9
	1270	5,8-11,2					350	3,8-5,5	550	4,0-4,4
	1330	0 - 7,6					450	2,2-3,6	950	6,2-6,7
	1430	0					660	0	1150	8,3

Pos. 41 - RQV 250-1150 AB776KL, 877KL

ca. 66 ⁰	1150	15,0-17,8	-	-	-	ca. 10	200	6,2-9,0	300	1,4-2,3
	1240	8,0-12,6					300	2,8-5,0	600	4,0-4,4
	1330	0 - 7					400	1,7-3,2	900	5,8-6,3
	1430	0					500	0,4-1,7	1150	8,3
							580	0		

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	Torque-control travel mm
1	2	3	4	5	6	7	8	9	10	11

Pos. 42 - RQV 300-300/1325 AB885DL, 888DL Torque-control travel a = 0,7 mm

ca. 50	1330	18,0-21,6	ca. 30	600	11,9-14,3	ca. 10	100	9,4-12,2	150	0,8-1,4
	1400	11,3-16,5		680	8,6-10,9		200	7,4-10,1	700	4,0-4,4
	1450	5,8-12,2		760	4,7-7,0		300	4,1-7,9	1020	7,4-7,6
	1500	0 - 8		840	0 -2,3		400	0 - 3	1300	
	1590	0		880	0		510	0	1330	7,8
										650
								430	0,6-0,8	

Pos. 46 - RQV 300-1200 AB839DL Torque-control travel Maß a = 1,2 mm

ca. 63	1250	14,8-17,8	-	-	-	ca. 12	200	6,8-8,2	1250	8,3
	1350	8,7-13,2					300	5,2-7,0		
	1480	0 - 6,5					470	0 - 2,2		
	1590	0					530	0		

Pos. 47 - RQV 300-750 AB890DL Torque-control travel Maß a = 1,0 mm

ca. 63	770	15,0-18,0	-	-	-	ca. 12	200	6,8-8,2	770	8,3
	800	8,0-13,8					400	3,0-4,6		
	840	0 - 7,0					520	0 - 1,6	750	0
	890	0					560	0	450	0,9-1,1

zu 47 - RQV 300/525-750 AB890DL - PRG-Änderung- Angleichweg Maß a = 1,0 mm

ca. 63	760	15,0-18,4	ca. 52	525	14,0-20,0	ca. 12	175	7,1-8,2	250	0,3-1,2
	800	4,2-11,0		600	7,9-12,2		300	4,0-6,3	400	1,9-2,1
	815	0 - 3,0		650	3,0-6,2		400	3,6-4,0	600	3,7-4,5
	850	0		700	0		600	0	760	8,3
									760	0
									600	1,0

Pos. 48 - RQV 300-1325 AB924DL Torque-control travel Maß a = 1,2 mm

ca. 68	1400	15,0-18,0	-	-	-	ca. 12	200	6,6-7,9	1400	8,3
	1500	6,6-12,2					400	3,6-5,2		
	1570	0 - 7,4					600	1,2-2,5	1330	0
	1660	0					750	0	600	1,1-1,3

Setting values for the governor RQV ..

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Pos. 50 - RQV 300/650-900 AB 939 DL

Torque-control travel Maß a = 1,0 mm

ca. 68	910	15,0-18,4	ca. 48	610	11,6-16,5	ca. 12	200	6,8-8,2	920	8,3
	980	0 - 7,5		700	6,0- 9,8		400	3,6-4,6	900	0
				790	0 - 2,0		600	1,8-4,0	650	0,9-1,1
	1020	0		810	0		720	0		

Pos. 50 - RQV 300/800-1150 AB 839 DL

Torque-control travel Maß a = 1,0 mm

ca. 68	1160	15,0-18,4	ca. 48	760	11,2-16,4	ca. 12	200	6,1-7,7	1160	8,3
	1200	8,4-13,8		850	7,6-11,8		450	3,6-4,0	1160	0
	1250	0 - 7,6		950	2,8-5,6		650	3,3-4,0	800	0,9-1,1
	1310	0		1030	0		900	0		

Pos. 52 - RQV 300-1250 AB 958 KL

ca. 66	1270	15,0-17,6	-	-	-	ca. 10	200	7,4-8,0	300	0,8-1,8
	1350	8,4-13,2					400	2,4-4,0	800	8,9-4,3
	1440	0 - 7					600	1,0-2,4	1270	8,3
	1530	0					790	0	-	-

Pos. 53 - RQV 300-1150 AB962 L

ca. 68	1160	15,0-18,0	-	-	-	ca. 12	200	7,3-9,0	250	0,3-1,3
	1220	8,2-13,6					450	2,7-4,1	1160	8,3
	1290	0 - 7,3					650	0,7-1,8	-	-
	1370	0					800	0		

Pos. 54 - RQV 300-1250 AB 1005 DL

Torque-control travel Maß a = 1,2 mm

ca. 68	1290	15,0-18,2	-	-	-	ca. 13	150	7,3-8,6	250	0,4-1,2
	1360	7,5-13,0					300	5,2-6,7	1290	8,2
	1420	0,5-8,1					600	2,0-3,2	1250	0
	1510	0					850	0	600	1,1-1,3

Setting values for the governor RQV.. V-Nr.

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

RQV 250-1325 ABV 11945 D

Torque-control travel Maß a = 0,8 mm

ca. 50	1340	14,0-17,6	-	-	-	ca. 13	100	7,8-11,2	400	1,8-2,3
	1400	8,2-13,4					200	6,3-8,9		
	1480	0 - 4,8					300	3,7-6,3		
	1560	0					450	0		

RQV 300-1150/1325 ABV 11310D

Torque-control travel Maß a = 0,6 mm

ca.68	1400	14,0-15,0	ca.62	1130	11,0-14,0	ca.12	100	7,2-8,5	200	0,4-1,0
	1500	3,8-10,0		1250	3,2- 6,6		300	5,4-6,6	900	4,4-4,8
	1550	0 - 6,7		1350	0,5- 1,3		600	1,9-3,3	1320-1400 =	
	1650	0		1460	0		850	0		8,3-8,5
									1150	0
									550	0,5-0,7

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Setting values for the governor EP/RZU ..

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

500 A 1/2, .. 1/4

full	500	1,0-14,0								
	510	1,0-1,5								
	550	1,0								

750 A 1/1, 1/3, 1/5, 1/6, 1/8, 1/10, 1/12, 1/16

full	750	1,0-14,0								
	758	1,0-1,5								
	800	1,0								

750 A 1/7, 1/9, 1/11, 1/13

full	750	14,0								
	770	9,4-10,1								
	800	2,6-4,2								
	820	1,0-1,4								
	860	1,0								

900 A 2/1, 2/5, 2/6, 2/8, 2/10, 2/12, 2/16, 2/18

full	900	1,0-14,0								
	910	1,0-7,0								
	920	1,0-1,5								
	955	1,0								

900 A 2/7, 2/9, 2/11, 2/13

full	900	14,0								
	920	9,7-10,5								
	940	5,5-7,1								
	960	1,0-3,6								
	970	1,0-1,5								
	1020	1,5								

Setting values for the governor EP/RZU.. Continued

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

923 A 2/14

full	923	1,0-14,0								
	932	1,0-1,5								
	970	1,0								

1150 A 3/12

full	1150	14,0								
	1160	1,0-4,0								
	1170	1,0-1,4								
	1190	1,0								

1150 A 3/19

full	1150	14,0								
	1180	9,7-10,6								
	1200	6,9-7,4								
	1240	1,2-4,0								
	1290	1,0								

1200 A 4/15

full	1200	1,0-14,0								
	1210	1,0-6,6								
	1220	1,0-1,5								
	1280	1,0								

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s

7. Edition

En

PES 6 A 90 D 410 RS 2293 RQV 300-1425 AB 946 L
Komb.-Nr. 0 400 846 364

superseded 8.80
company: Daimler-Benz
OM 352 A
engine: 124 kW (168 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
($2,10-2,30$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca 10	100	min.7,3	250	0,9-1,1
ca. 61	9,8	1435-1445					300	5,7-5,9	640	3,3-3,7
	4,0	1535-1565					570-630=2,0		030	5,9-6,2
	1700	0-1,0				400-600	750	max.1,0	425	8,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min ④ cm ³ /1000 strokes ⑤		Starting fuel delivery Idle switching point ⑥ rev/min ⑥ cm ³ /1000 strokes ⑦		Torque-control travel ⑤ rev/min ⑧ Control rod travel mm ⑨	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 1375	0,7 bar 74,0-75,0 (72,0-77,0)	1435-1445*	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	13,7-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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G12

G12

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 s

- 2 -

Test at n = 1375 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PES 6 A.. RS 2293 +RQV..AB9462	0,70	0,20 0	10,8-10,9 10,4-10,6 10,2-10,3

Notes

(1) when n

rev/min and
gauge pressure =

bar (- maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s 5

1. Edition

En

PES 6 A 90 D 410 RS 2293
Komb.-Nr. 0 400 846 365

ROV 300-1425 AB 947 L

supersedes

company: Daimler-Benz
engine: OM 352 A
124 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,0	-	-	-	ca. 12	100	min. 7,3	250	0,9-1,1
ca. 66	9,8	1435-1445					300	5,7-5,9	640	3,3-3,7
	4,0	1530-1560					570-630	= 2,0	1030	5,9-6,2
	1650	0 - 1,0				300-500	750 max.	1,0	1425	8,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1375	0,5 bar 74,0-75,0 (72,0-77,0)	1435-1445* 700	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	13,7-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2
5.84

Testoil-ISO 4113

G14

G14

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D. Adjustment Test for Manifold Pressure Compensator

MB 5,7s5

-2-

Test at n 1375 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2293 + RQV..AB 947 L	0,50	0,15 0	10,8 - 10,9 10,4-10,6 10,2-10,3

Note:

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s 6

1. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1425 AB 948 L

Komb.-Nr. 0 400 846 366

supersedes

company: Daimler-Benz

engine: OM 352 A

124 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
($2,10-2,30$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,0	-	-	-	ca. 12	100	min.7,3	250	0,9-1,1
ca. 66	9,8	1435-1445					300	5,7-5,9	640	3,3-3,7
	4,0	1530-1560					570-630 = 2,0		1030	5,9-6,2
	1650	0-1,0				300-500	750	max.1,0	1425	8,7
						③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1375	0,5 bar 74,0-75,0 (72,0-77,0)	1435-1445* 700	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	13,7-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 s 6

- 2 -

Test at n 1375 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	mm (1) diminution difference
PES6A..RS2293 + RQV..AB948L	0,50	0,15	10,8 - 10,9
		0	10,6 - 10,7
			10,4 - 10,5

Notes:

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s 7

1. Edition

PES 6 A 90 D 410 RS 2293

RQV 300-1425 AB 949 L

Komb.-Nr. 0 400 846 367

supersedes

company Daimler-Benz

engine OM 352 A

124 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$ mm (from BDC)
($2,10-2,30$)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1420	16,0-19,0	-	-	-	ca. 12	100	min. 7,3	250	0,9-1,1
ca. 66	9,8	1435-1445					300	5,7-5,9	640	3,3-3,7
	4,0	1530-1560					570-630 = 2,0		1030	5,9-6,2
	1650	0-1,0				300-500	750	max. 1,0	1425	8,7
						③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1375	0,5 bar 74,0-75,0 (72,0-77,0)	1435-1445* 700	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	13,7-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

G18

G18

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 s 7

- 2 -

Test at n = 1375 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2293 + RQV..AB949L	0,70		10,8 - 10,9
		0,20	10,4 - 10,6
		0	10,2 - 10,3

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 1

5. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1138 I

Bosch - No. 0 445 900 1138 I

supersedes 8.82

company Daimler-Benz

engine

OM 352 A

124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
($2,1 - 2,3$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5 - 7,6	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca. 15	100 300	min. 9,2 7,6-7,8	250 600 1000 1400	0,9-1,1 3,1-3,4 5,5-5,7 8,2
ca. 61	10,3 4,0 1650	1435-1445 1550-1580 0 - 1,0				350-475 (3u)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) rev/min 1		Rotational-speed limitation intermediate speed rev/min 3		Fuel delivery characteristics high idle speed rev/min 4		Starting fuel delivery idle switching point rev/min 6		Torque-control travel rev/min 8	
cm ³ /1000 strokes 2	cm ³ /1000 strokes 5a	cm ³ /1000 strokes 5b	cm ³ /1000 strokes 5c	cm ³ /1000 strokes 5d	cm ³ /1000 strokes 5e	cm ³ /1000 strokes 5f	cm ³ /1000 strokes 5g	Control rod travel mm 9	Control rod travel mm 9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445 *	LDA 500	0 bar 56,0-58,0 (54,0-60,0)		100	14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

G20

G20

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D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 x 1

-2-

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Testoil-ISO 4113

Pump/governor	Setting	Measurement		Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	bar	mm (1)	
PES 6 A..RS 2293 with ..AB 1138 L	0,70			11,3 - 11,4	
		0		11,0 - 11,1	
		0,28		11,1 - 11,2	

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En

621

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x

7. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1140 L

Komb.-Nr. 0 400 846 475

superseeded 41.82

company Daimler-Benz

engine OM 352 A

124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,10-2,30)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5-7,6	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca. 15	100	min. 9,2	250	0,9-1,1
ca. 61	10,3 4,0 1650	1435-1445 1550-1580 0-1,0				350-475	300	7,6-7,8	600 950 400	3,1-3,4 5,3-5,5 8,2

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	4a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445*	700	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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G22

G22

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 x

- 2 -

Test at n = 1375 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2293 + RQV..AB1140L	0,70		11,3 - 11,4
		0	11,0 - 11,1
		0,28	11,1 - 11,2

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 13,8 a
1. Edition

En

PE 6 P 100/420 LS 89 RSUV 250-600 P 8/321 R
Komb.-Nr. 0 401 876 057
Note VDT-I-401/ 103

supersedes -
companion KHD
engine F 6 M 716

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 mm (from BDC):
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm/100 strokes	Difference cm/100 strokes	Control rod travel mm	Fuel delivery cm/100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	600 620 635	16,0 10,6 6,3	without auxiliary spring			ca. 32	250	8,0	580	0
							60	19-21	325	0
			with auxiliary spring				250	7,7-8,3	270	1,2-1,8
							280	3,1-5,2		
2a	620 650 700	9,4-11,5 2,6-4,8 0 - 1,0					330	0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40 C (104 F)		Note changed to 1 rev/min							
rev/min	cm/1000 strokes	3		rev/min	cm/1000 strokes	rev/min	cm/1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
Take	from VDT-I-401/103					-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.84

BOSCH

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G24

G24

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 7

1. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1141 L

Komb.-Nr. 0 400 846 476

supersedes

company: Daimler-Benz

engine: OM 352 A

124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
($2,10-2,30$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5-7,6	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca. 15	100 300	min.9,2 7,6-7,8	250 600 950 1400	0,9-1,1 3,1-3,4 5,3-5,5 8,2
ca. 61	10,3 4,0 1650	1435-1445 1550-1580 0-1,0				350-475 (3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)		Fuel delivery characteristics high idle speed (5b) (5a)		Starting fuel delivery Idle switching point (6)		Torque-control travel Control rod travel (5)	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	9	
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445* 700	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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H1

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 x 7

- 2 -

Test at n 1375 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2293 + RQV..AB1141L	0,70		11,3 - 11,4
		0	11,0 - 11,1
		0,28	11,1 - 11,2

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 8

1. Edition

En

PES 6 A 90 D 410 RS 2293

RQV 300-1400 AB 1142 L

Komb.-Nr. 0 400 846 477

supersedes

company: Daimler-Benz

engine: OM 352 A

124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $2,15-2,25$
 (2,10,2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5-7,6	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca. 15	100 300	min.9,2 7,6-7,8	250 600 950 1400	0,9-1,1 3,1-3,4 5,3-5,5 8,2
ca. 61	10,3 4,0 1650	1435-1445 1550-1580 0-1,0				350-475 ③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445* 1300	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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H3

D. Adjustment Test for Manifold Pressure Compensator

MB 5,7 x 8

- 2 -

Test at n 1375 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)	
PES6A..RS2293 + RQV..AB1142L	0,70		11,3 - 11,4	
		0	11,0 - 11,1	
		0,28	11,1 - 11,2	

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 8,8 b

1. Edition

En

PES 6 A 90 D 410 RS2345 RQ 275/1325 AB798D
 PES 5 A 90 D 410 RS2344 RQV 275-1325 AB799D
 PES 4 A 90 D 410 RS2343 EP/RSV ... P616D

supersedes -
 company: KHD Liz. TAM
 F6 L413R (8.8)
 engine: F5 L413R (7,4)
 F4 L413R (5,9)

**

Full-load tables are contained in the microfiches of PES..A..2416, 2417 and 2424 or in WPP test specifications KHD 8.8 a.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,50-1,60}
 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			
200	6	1,6 - 2,6				
	9	1,9 - 2,9				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQ..798D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1350	13,5-13,9	550	0	100	7,1-8,1	700	15,6-16,0
				1400	7,5-11,7			200	5,8-7,6		
				1450	0 - 8,0			300	3,5-5,6	1050	13,9-14,2
				1540	0			460	0		

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
	**					100	17,0 - 17,6
						Change-over point RQV: 160-230 min ⁻¹	

Checking values in brackets

Testoil-ISO 4113

Setting values for the governor

KHD 8,8 b

- 2 -

B)

RQV:

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Torque-control travel mm
1	2	3	4	5	6	7	8	9	10	11

RQV 275-1325 AB799D

Torque-control travel

Maß a = 0,9 mm

ca. 68	1375 1630	15,0-18,0 0				ca. 12	200 400 600 750 850	6,4-8,2 2,8-4,6 1,5-3,0 0 -1,4 0	1375 1325 500	8,3 0 0,8-1,0
ca. 66	1325 1410 1490 1600	15,0-17,5 7,4-13,0 0 - 8,0 0								

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H6

En
H6

B)

EP/RSV

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque	control travel
1	2	3	4	5	6	7	8	9	10	11

300-750 A7 B616D

ca.48	750	16,0	without auxiliary spring			ca.24	300	6,0	730	0	
	800	8,0					125	19-21			
	820	4,2					300	5,7-6,3			
	785	9,4-11,6	with auxiliary spring					350	0,7-0,9		
	810	4,8- 7,7								450	0,6-3,2
	940	0,3- 1,0								560	0 - 1

300-900 A7 B616D

ca.60	900	16,0	without auxiliary spring			ca.27	300	6,0	880	0	
	950	9,8					100	19-21			
	975	6,0					300	5,7-6,3			
	950	8,6-10,9	with auxiliary spring					450	0,8-3,3	400	0,9-1,1
	1000	2,8- 4,7						600	0 - 1		
	1100	0,3- 1,0									

300-1000 A8 B616D

ca.50	1000	16,0	without auxiliary spring	ca.21	300	6,0	980	0
	1050	11,7			150	19-21		
	1100	6,5			300	5,7-6,3		
	1050	10,8-12,6	with auxiliary spring	500	1,2-3,6	400	0,9-1,1	
	1120	4,0- 6,0		650	0 - 1			
	1270	0,3- 1,0						

300-1150 A8 B616D

ca.58	1150	16,0	without auxiliary spring			ca.22	300	6,0	1130	0
	1200	11,8					150	19-21		
	1250	7,0					300	5,7-6,3		
	1200	11,0-12,8	with auxiliary spring				400	0,9-1,1		
	1300	2,7- 4,7							450	2,7-4,3
	1430	0,3- 1,0							650	0 - 1

300-1325 A8 B616D

ca.68	1325	16,0	without auxiliary spring	ca.24	300	6,0	1310	0
	1400	9,4			150	19-21		
	1440	5,0			300	5,7-6,3		
	1400	8,3-10,5	with auxiliary spring		450	2,3-4,4	450	0,9-1,1
	1450	3,0- 4,7			650	0 - 1		
	1600	0,3- 1,0						

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 12,8 g

2. Edition

En

PE 8 A 90 D 320 LS 2372 RQV 250-1250 AB 1186 R

superseded 10.83

Komb.-Nr. 0 400 648 136

company MAN

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^0 \pm 0,5^0$ ($\pm 0,75^0$)

D 2538 ME

engine: 188 kW/2500 min⁻¹

MAN-Nr. 2-7187

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5 - 1,6$
(1,45-1,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,5±0,1	10,3-10,4	0,3(0,5)			
250	5,9-6,1	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	200	0,7-0,9
ca. 45	9,5	1290-1300					250	5,9-6,1	550	3,9-4,2
	4,0	1340-1370					320-380	=2,0	1000	5,9-6,3
	1500	0 - 1,0							1350	9,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	102,5-103,5 (100,5-105,5)	1290-1300*	800	96,5-98,5 (94,0-101,0) max. 94,0 (max. 96,5)	100	133,0-143,0 (130,0-146,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

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H8

H8

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 9,6 k

2. Edition

PES 6 A 95 D 410 RS 2416

RSV 325-1100 A 8 B 2040 L

Komb.-Nr. 0 400 876 279

supersedes 9.83

company KHD

engine BF6L413 FR
Schlepper DX 230,
147 kW/2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,75-1,85
Port closing at prestroke (1,70-1,90) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1100	10,6+0,1	11,2-11,4	0,3 (0,6)			
325	5,4-5,6	0,9-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees			3 Torque control Control rod travel	
1	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	rev/min	Control rod travel mm	rev/min	mm
loose	800	0,3-1,0	-	-	-	ca. 16	325	5,5	1100	10,6-10,7
	X = 4,0						100	min. 19,0	550	10,6-10,8
							325	5,9-6,1	375	11,8-12,4
ca. 49	9,6	1140-1150					440-500	= 2,0		
2a	3,7	1165-1195					600	max. 1,0		
	1330	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40 °C (104 °F)		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm ³ /1000 strokes	Note changed to 1 rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	
LDA 1100	0,5 bar 111,5-113,5 (109,5-115,5)	1140-1150*	LDA 900	0,5 bar 114,0-117,0 (112,0-119,0)	100	120,0-130,0 = 13,4 - 14,0 mm RW	0	-	-
			LDA 500	0 bar 77,5-80,5 (75,5-82,5)					

Checking values in brackets

* 1 mm less control rod travel than col 2

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D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 K

- 2 -

Test at n

500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PES6A..RS2416 + RSV..A8B 2040L	0,24	0,49 0,35 0	9,6-9,9 10,6-10,7 10,3-10,4 9,5-9,6	

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

H10

H10

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4

KHD 1 e

2. Edition

En

Testoil-ISO 4113

PE 3 A 95 D 410 LS2447 RQV.. AB397
PE 10 A95 D610/4LS2448 RQV.. AB896
PE 12 A 95 D610 LS2449 RQV.. AB896, 1002, 1032

supersedes 8.77
company K H D
engine BF 8 L 413 F
10
12

Please note instructions on sheet 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,8 - 1,9 mm (from BDC) s. a. S. 2 !

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,5			
200	6	3,2 - 4,2				
	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque control travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
page	3									

Torque control travel a mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
page	4 - 9							

Checking values in brackets

* 1 mm less control rod travel than col 2

3.78

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H11

H11

NOTES1. Complete type designation:

PE 8 A 95 D 410 LS2447	RQV 300-1250 AB897L 300-1325
PE 10 A95D610/4 LS2448	RQV 300-1325 AB896L 300-1250 300-1150
PE 12 A 95 D610 LS2449	RQV 300-1250 AB896L 300-1250 AB1002L 750 AB1032L

2. Concerning Section A - cam sequence and angular cam spacing:

<u>8 Cyl.</u>	1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 - 1 0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 - 360°
<u>10 Cyl.</u>	1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2 - 1 0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315 - 360°
<u>12 Cyl.</u>	1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 - 1 0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315 - 360°

3. Concerning Sections C and D - Full-load delivery setting and manifold-pressure compensator setting:

Given in Section C in Column 1 is the engine speed/min., in Column 2 the pressure in bar, and in Column 3 the fuel delivery in cm³/1000 lifts, in the sequence

Full-load delivery with charge-air pressure
Full-load delivery without charge-air pressure
as well as starting fuel delivery.

In Section D - Columns 5 - 7 = manifold-pressure compensator adjustment - the stated charge-air pressure is set at the respective engine speed and with falling pressure. The data in the second row are for adjusting the spring preload of the manifold-pressure compensator spring, i.e. this spring is to be preloaded so that the stated pressure (Column 6) is reached with 0.1...0.2 mm control-rod travel reduction (Column 7).

Further information on adjusting the manifold-pressure compensator is contained in W 420/304.

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	control travel mm
1	2	3	4	5	6	7	8	9	10	11

300-1325 AB896L, 897L

ca. 68	1350	15,0-18,0	-	-	-	ca. 12	200	7,5-9,0	250	0,3-1,2
	1430	8,3-13,0					300	4,9-7,1	800	3,6-4,1
	1520	0 -6,6					500	2,7-4,2	1350	8,2
	1600	0					890	0	-	-

300-1250 AB896L, 897L, 1002L

ca. 68	1300	14,5-17,6	-	-	-	ca. 12	200	7,3-9,0	250	0,3-1,3
	1380	6,3-12,4					300	4,9-7,1	800	3,8-4,2
	1450	0 -7,2					500	2,3-4,8	1290	8,2
	1540	0					840	0	-	-

300-1150 AB896L

ca. 68	1160	15,0-18,0	-	-	-	ca. 12	150	8,0-9,0	250	0,3-1,3
	1220	8,4-13,6					300	4,8-7,0	700	3,6-4,1
	1300	0 -6,5					500	0 -1,2	1160	8,2
	1370	0					780	0	-	-

780 AB1032L

ca. 37	10,0	750-755							750	5,9
	4,0	765-780							-	-

--	--	--	--	--	--	--	--	--	--	--

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. 235 kW/320 PS / 2650/min

- RQ 300/1325 ABV 12830

1325 0,8 110,5 - 112,5
500 0 64,5 - 66,5
100 - 126,5 - 136,5

1325 0,8 **
875 0,4 -0,1-0,2
500 0

2. 235 kW/320 PS / 2500/min

-RQ 300/1250 ABV 12831

1250 0,75 110,5 - 112,5
500 0 64,5 - 66,5
100 - 126,5 - 136,5

1325 0,75 **
875 0,40 -0,1-0,2
500 0

3. 222 kW/302 PS / 2500/min

-RQ 300/1250 ABV 13686 D

1250 - 113,5 - 115,5

Special governor mounting, no manifold-pressure compensator
a = 0,2 mm

4. 235 kW/320 PS / 2650/min

-RQV 300-1325 AB 897 L (V 12826)

1325 0,8 109,5 - 111,5
500 0 77,5 - 79,5
100 - 126,5 - 136,5

1365-1375* 1325 0,8 **
850 0,35 -0,1-0,2
500 0

5.1-245 kW/333 PS / 2500/min

-RQV 300-1250 AB 897 L (V 12252)

2-235 kW/320 PS / 2500/min

-

3-211 kW/286 PS / 2500/min

-

1. 1250 0,8 113,5 - 115,5 1290-1300*

2. 1250 0,8 110,5 - 112,5

1250 0,8 **

3. 1250 0,7 101,5 - 103,5

875 0,35 -0,1-0,2

500 0 64,5 - 66,5

100 - 126,5 - 136,5

500 0

6.1-222 kW/302 PS / 2300/min

-RQV 300-1150 ABV 12827

2-190 kW/258 PS / 2300/min

1. 1150 0,65 112,5 - 114,5 1190-1200*

1150 0,50 **

2. 1150 0,50 99,5 - 101,5

875 0,36 -0,1-0,2

500 0 64,5 - 66,5

100 - 126,5 - 136,5

500 0

7. 212 kW/288 PS / 2300/min

-RQV 1150 ABV 13864

1150 - 106,5 - 108,5

1160

** Full load

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
8. 204 kW/277 PS / 2150/min			-		RQV 1075 ABV 13683			
1075	-	107,5 - 109,5	1090					
100		116,5 - 126,5						
9. 178 kW/242 PS / 1800/min			-		RQV 300-900 ABV 13689			
900	0,4	106,5 - 109,5	940-950*		900	0,40	**	
500	0	67,5 - 69,5			875	0,35	-0,1-0,2	
100	-	126,5 - 136,5			500	0		
10. 143 kW/194 PS / 1500/min			-		RQV 300-750 ABV 13685			
750	0,3	103,5 - 105,5	790-800*		750	0,30	**	
500	0	67,5 - 69,5			725	0,28	-0,1-0,2	
100	-	116,5 - 126,5			500	0		

** Full load

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

-6-

①

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation rev/min	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1. 294 kW/400 PS / 2650/min - RQ 300/1325 AB 963 (V 12832)								
1325	0,8	110,5-112,5		1325	0,8		**	
500	0	64,5- 66,5		875	0,4		-0,1-0,2	
100	-	126,5-136,5		500	0			
2. 294 kW/400 PS / 2500/min - RQ 300/1250 AB 963 (V 12833)								
1250	0,75	110,5-112,5		1250	0,75		**	
500	0	64,5- 66,5		875	0,40		-0,1-0,2	
100	-	126,5-136,5		500	0			
3. 278 kW/378 PS / 2500/min - RQ 300/1250 ABV 13407 D a = 0,2								
1250	-	105,5-107,5						
100		126,5-136,5						
4. 294 kW/400 PS / 2650/min - RQV 300-1325 AB 896 L (V 12828)								
1325	0,8	110,5-112,5	1365-1375*	1325	0,80		**	
500	0	64,5- 66,5		875	0,40		-0,1-0,2	
100	-	126,5-136,5		500	0			
5. 294 kW/400 PS / 2500/min - RQV 300-1250 AB 895 L (V 12076)								
1250	0,75	110,5-112,5	1290-1300*	1250	0,75		**	
500	0	64,5- 66,5		875	0,40		-0,1-0,2	
100	-	126,5-136,5		500	0			
6. 278 kW/378 PS / 2300/min - RQV 300-1150 AB 896 L (V 12744)								
1150	0,65	112,5-114,5	1190-1200*	1150	0,65		**	
500	0	64,5- 66,5		875	0,40		-0,1-0,2	
100	-	126,5-136,5		500	0			
7. 265 kW/360 PS / 2300/min - RQV 1150 ABV 13188								
1150	-	106,5-108,5	1160					
100		126,5-136,5						
8. 255 kW/374 PS / 2150/min - RQV 300-1075 ABV 13221								
1075	0,5	107,5-109,5	115-1125*	1075	0,50		**	
500	0	64,5- 66,5		850	0,35		-0,1-0,2	
100		126,5-136,5		500	0			

** Full load

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

-7-

①

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
9. 255 kW/347 PS / 2150/min			-	RQV 1075	ABV 13755			
1075	-	107,5 - 109,5	1085					
100	-	126,5 - 136,5						
10. 243 kW/330 PS / 2000/min			-	RQV 300 - 1000	ABV 13393			
1000	0,46	107,5 - 109,5	1040-1050*	1000	0,46		**	
500	0	64,5 - 66,5		875	0,38		-0,1-0,2	
100	-	126,5 - 136,5		500	0			
11. 223 kW/303 PS / 1800/min			-	RQV 300/650-900	ABV 13166			
900	0,40	106,5 - 109,5	940-950*	900	0,40		**	
500	0	64,5 - 66,5		850	0,35		-0,1-0,2	
100	-	126,5 - 136,5		500	0			
12. 223 kW/303 PS / 1800/min			-	RQV 900	ABV 13754			
900	-	107,5 - 109,5	910					
100	-	126,5 - 136,5						
13. 179 kW/243 PS / 1500/min			-	RQV 300/525 - 750	ABV 13165			
750	0,3	103,5 - 205,5	790-899*	750	0,30		**	
500	0	64,5 - 66,5		725	0,28		-0,1-0,2	
100	-	126,5 - 136,5		500	0			

** Full load

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1.	353 kW/480 PS	/ 2500/min	- RQ	300/1250 ABV	13407	D		a = 0,2mm

1250 110,5 - 112,5 600
100 116,5 - 126,5

2.1 -353 kW/480 PS / 2650/min - RQV 300-1325 AB 896 L (V 12828)

2 -335 kW/455 PS / 2650/min

1.

2.

1.	1325	0,8	110,5-112,5	1365-1375*	1325	0,8	0,6	**
2.	1325	0,6	105,5-107,5		875	0,4	0,38	-0,1-0,2
	500	0	64,5- 66,5		500	0	0	
	100	-	126,5-136,5					

3.1 -353 kW/480 PS / 2500/min - RQV 300-1250 AB 896 L (V 12076)

2 -315 kW/428 PS / 2500/min

1.	1250	0,75	110,5-112,5	1290-1300*	1250	0,75	0,55	**
2.	1250	0,55	101,5-103,5		875	0,36	0,36	-0,1-0,2
	500	0	64,5- 66,5		500	0	0	
	100	-	126,5-136,5					

4. 320 kW/435 PS / 2500/min - RQV 300-1250 AB 1002 (V13584)

1250	0,7	102,5-104,5	1290-1300*	1250	0,70	**
500	0	64,5- 66,5		850	0,33	-0,1-0,2
100	-	126,5-136,5		500	0	

5.1 -335 kW/455 PS / 2300/min - RQV 300-1150 AB 890 L (V 12744)

2 -286 kW/389 PS / 2300/min

1.	1150	0,65	112,5-114,5	1190-1200*	1150	0,65	0,50	**
2.	1150	0,50	99,5-101,5		875	0,40	0,36	-0,1-0,2
	500	0	74,5- 76,5		500	0	0	
	100	-	126,5-136,5					

6. 318 kW/432 PS / 2300/min - RQV 300-1150 AB 962 L (V 13687)

1150	-	106,5-108,5	1190-1200*
100		116,5-126,5	

7. 318 kW/432 PS / 2300/min - RQV 1150 ABV 13188

1150	106,5-108,5	1160
100	116,5-126,5	

8. 306 kW/416 PS / 2150 min - RQV 1075 ABV 13755

1075	-	107,5-109,5	1085
100		116,5-126,5	

** Full load

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

9.1-306 kW/416 PS / 2150/min

- RQV 300-1075 AB13221

2-275 kW/374 PS / 2150/min

1. 2.

1. 1075 0,5 107,5 - 109,5
 2. 1075 0,46 98,5 - 100,5
 500 0 64,5 - 66,5
 100 126,5 - 136,5

1115-1125*

1075 0,50 0,46 **
 875 0,38 0,36 -0,1-0,2
 500 0 0

10. 292 kW/397 PS / 2000/min

- RQV 300-1000 ABV13393

1000 0,46 107,5 - 109,5
 500 0 64,5 - 66,5
 100 - 126,5 - 136,5

1040-1050*

1000 0,46 **
 875 0,38 -0,1-0,2
 500 0

11. 292 kW/397 PS / 2000/min

- RQV 300-1000 ABV 13550

1000 - 107,5 - 109,5
 100 126,5 - 136,5

1040-1050*

12. 268 kW/364 PS / 1800/min

- RQV 300-900 ABV 13549

900 - 107,5 - 109,5
 100 126,5 - 136,5

940-950*

13. 268 kW/364 PS / 1800/min

- RQV 300 ABV 13754

900 107,5 - 109,5
 100 126,5 - 136,5

910

14.1-268 kW/364 PS / 1800/min

- RQV 300/650-900 ABV 13166

2-241 kW/328 PS / 1800/min

1. 900 0,4 107,5 - 109,5
 2. 900 0,35 97,5 - 99,5
 500 0 64,5 - 66,5
 100 - 126,5 - 136,5

940-950*

900 0,4 **
 850 0,35 -0,1-0,2
 500 0

15.1-215 kW/292 PS / 1500/min

- RQV 300/525-750 ABV 13165

2-194 kW/264 PS / 1500/min

1. 750 0,3 103,5 - 105,5
 2. 750 0,28 93,5 - 95,5
 500 0 64,5 - 66,5
 100 - 126,5 - 136,5

790-800*

750 0,3 **
 725 0,25 -0,1-0,2
 500 0

16. 215 kW/292 PS / 1500/min

- RQV 750 ABV 13464

750 - 103,5 - 105,5
 100 116,5 - 126,5

760

** Full load

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 KHD 12,7 q

1. Edition

En

PE 8 A 95 D 410 LS 2451

RQV 300-800/1100 AB 973 DL

supersedes -

The values given in KHD 1 d to not apply, since change of governor company:

engine:

KHD-Köln
F 8 L 413 F
162 kW /
2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,00-2,10
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,4-9,5	8,7 - 8,9	0,3(0,6)			
300	5,4-5,6	0,6 - 1,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	ca. 53			ca. 11	100	min. 7,0	300	1,2-1,3
ca. 64	8,4 4,0 1350	1140-1150 1205-1235 0 - 1,5		8,5 4,0	695-705 755-785		300 650 495-555= 2,0	5,4-5,6 max. 1,0 2,0	450 850 1140	2,7-3,1 7,5-7,7 8,8

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	86,5-88,5 (84,5-90,5)	1140-1150*	700	88,5-92,5 (86,5-94,5)	100	110,0-120,0 bei 13,2 - 14,2 mm RW	1100 800 500	9,4-9,5 9,8-10,0 10,1-10,3
			400	max. 84,5 (max. 86,5)	100-220	(80-240)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.82

Testoil-ISO 4113

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H20

H20

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 12,7 r
2. Edition

En

PE 8 A 95 D 410 LS 2451 RSV 300-1325 A8B 1002 DL
Komb.-Nr. 0 400 678 040 A8C 1002 DL

supersedes 8.83
company KHD
engine F 8 L 413 F

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 je 45° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

(1) 188 kW (255 PS) bei n=2650min⁻¹
(2) 157 kW (213 PS) bei n=2300min⁻¹

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1325	9,7-9,8	9,2-9,4	0,3(0,6)			
300	5,9-6,1	0,9-1,5	0,5(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0 X = 4,75	-	-	-	ca. 20	300	6,0	1325	9,7-9,8
ca. 63	8,7	1365-1375					100	min 19,0	500	10,0-10,1
2a	4,0	1420-1450					300	5,9-6,1		
	1575	0,3-1,7					520-580	= 2,0		
							700	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
(1)									
1325	91,5-93,5 (89,5-95,5)	1365-1375*	-	-		100	116,5-127,5 =14,0- 14,4 mm RW	-	-
(2)									
1150	83,0-85,0 (81,0-87,0)	1190-1210*							

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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Testoil: SO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 6,2 c 2

2. Edition

En

PES 6 A 90 D 320/3 RS 2464-1

RSV 325-1200 AOB 2182 R

AOC 2182 R

supersedes 6.83

company MWM

TD 226-6

engine 107 kW

Komb.-Nr. 0 400 866 115

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 Port closing difference between control-rod travel 9mm
(2,10-2,30) and max. $\frac{9\text{mm}}{100\text{ strokes}} = 0,09$ - 4,5° camshaft

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,6±0,1	7,5-7,6	0,3(0,45)			
325	7,4-7,6	0,5-1,5	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 17	325	7,0	1180	10,6-10,7
	$\chi = 3,0$								500	11,5-11,6
							325	7,4-7,6	875	11,0-11,2
							505-565	= 2,0		
ca. 44	9,6	1240-1250								
2a	4,0	1290-1320								
	1450	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min				Idle			
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
LDA	0,7 bar	1240-1250*		LDA	0 bar	100	113,0-123,0	-	-
1200	74,5-75,5 (72,5-77,5)			500	59,5-60,5 (57,5-62,5)		(110,0-126,0) = 19,5- 21,0 mm RW	0	0

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

MWM 6,2 c 2

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure - bar	Gauge pressure - bar	mm (1) diminution difference
PES6A..RS2464-1 + RSV..A0B2182R	0,70	0 0,14 0,13	11,5-11,6 11,0-11,1 11,3-11,4 11,1-11,3

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 13,8 b 1

1. Edition

En

PE 6 P 110/42Q LS 89 RSV 250-1000 P 7/312 R

Values only apply to test nozzle-and-holder
assembly 0 681 443 022 and fuel-injection test
tubing 1 680 750 060

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company KHD

engine F 6 M 716

Kom.-Nr. 0 401 876 067

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	12,0	18,8-19,6	0,8			
600	6,0	3,4-4,4				
600	12,0	18,2-19,5				
600	15,0	26,7-28,4				
200	6,0	0,9-1,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1000	16,0	without auxiliary spring			ca. 28	300	6,0	980	0
	1050	9,0					100	19-21	450	0
	1080	4,0					300	5,7-6,3	340	1,2-1,8
			with auxiliary spring				350	3,2-4,5		
							450	0-1,0		
2a	1050	7,0-10,0								
	1100	1,5-3,8								
	1180	0 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5 Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to rev/min							
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
Take	from VDT-I-401/103					-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

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Testoil-ISO 4113

H24

H24

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MAN 11,1 h

5. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 LS2485 RQV 250-1100 AB850D (1)
LS2485Z RQV 250-1100 AB850D (2)
LS2485 RQV 750 AB955 (3)
Komb.-Nr. 0 400 846 371 (1) MAN-Nr. 1-7727
0 400 846 403 (2) MAN-Nr. 1-7842
0 400 846 376 (3) MAN-Nr. 1-7738

supersedes 3.84

company M A N

engine D 2566 M..

(1) M/MF-177 kW/2200 min⁻¹
(2) MSFV-162 kW/2200 min⁻¹
(3) ME-126 kW/1500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60 mm (from BDC)
(1,45-1,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
		2485			2485Z	
1	2	3	4	2	3	6
1100	11,7+0,1	12,3 - 12,5	0,3(0,6)	11,0+0,1	11,2 - 11,4	
250	5,9-6,1	1,1 - 1,7	0,3(0,5)	5,6-5,8	0,9 - 1,5	

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

2485 mit 850D (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1140 1200 1220 1300	14,4-17,6 4,0-10,6 0 - 8 0 - 1	-	-	-	ca. 13	100 200 300 410	7,5-10,2 5,7-8,5 2,5-5,3 0	200 600 1140 1140 550	0,5-2,2 3,8-4,1 8,3 0 0,4-0,6

Torque control travel a 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40 °C (104 °F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1100 (1)	123,0-125,0 (121,0-127,0)	1140-1150 *	500	113,5-118,5 (111,5-120,5)	100 250 130-190(120-200)	108,5-116,5 = 12,6-13,0 mm RW 6,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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B. Governor Settings

2485 Z + RQV..850 D

MAN 11,1 h

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1140	14,4-17,6	-	-	-	ca.13	100	min. 7,4	200	0,7-0,9
ca.42	10,0 4,0 1300	1140-1150 1175-1205 0-1,0				3a	250 310-370 450	5,6-5,8 =2,0 max.1,0	500 800 1100	3,5-3,8 4,9-5,4 7,7

Torque control travel a 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100 (2)	111,5-113,5 (109,5-115,5)	1140-1150*	800 500	114,5-118,5 (112,5-120,5) 111,5-113,5 (109,5-115,5)	100	13,7-14,3 mm RW	1100 800 500	11,0+0,1 11,4+0,2 11,5+0,1

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

2485 + RQV..955

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 29	725 750 770 800	16,0-22,0 9,3-13,8 2,5-11,0 0		-	-	-	-	-	750	4,6

Torque control travel a mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
725 (3)	122,5-124,5 (120,5-126,5)	765-770*	-	-	200	7,0-11,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 1 d

3. Edition

En

Testoil-ISO 4113

PE 6 A 95 D 410 LS 2450 RQ...929,930,984D, 986D,987D
PE 8 A 95 D 410 LS 2451 RQV...898,931,973,974,975
PE 10 A 95D 10/4 LS 2452 976,983D,988D, 990D,
PE 12 A 95 D 610 LS 2453 996,999, 1006D, 1009, 1014,
1016,1020,1021,1026D
EP/RSV...1002D, 1034

supersedes 2.78
company K H D
engine F 6 L 413F/ FW
8
10
12

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 mm (from BDC) Please note instructions on sheet 2

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever	rev/min 8	Control rod travel mm 9	Torque control travel rev/min 10	Torque control travel mm 11
1			4			7				
page	3-8									

Torque control travel a mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
page	9 - 22							

Checking values in brackets

* 1 mm less control rod travel than col 2

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11.83

INSTRUCTIONS

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2. Cam sequence and angular cam spacing

6 cyl. 1 - 6 - 5 - 4 - 3 - 2 - 1

0 - 75 - 120 - 195 - 240 - 315 - 360°

8 cyl. 1 - 8 - 7 - 2 - 6 - 5 - 4 - 3 - 1

0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 - 360°

10 cyl. 1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2 - 1

0-27-72-99-144-171-216-243-288-315-360°

12 cyl. 1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12 - 1

0-15-60-75-120-135-180-195-240-255-300-315-360°

3. Instructions for testing

to Section B:

Torque control dimension a = .. -section C, column 8 as required for trials no. for pre-adjustment. Final dimension to be set according to fuel-delivery characteristics in Section C, column 4-5. Further instructions for trials no. will follow on a separate information sheet.

to Section C:

If supplied, the control-rod stop with RQV governors must be set with a torque control of $n = 600/\text{min}$.

B. Governor Settings

RQ..

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
Control rod travel		Setting point		Test specifications		Setting point		Test specifications			
rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12

300 1325 AB 929L, 930L

650	15,6-16,0	650	16,0	1350	15,6-16,0	580	0	200	6,4-8,1	-	-
				1400	5,0-12,2			300	4,4-6,5		
				1440	0 - 7,0			400	1,2-3,5		
				1500	0 - 1,5			480	0		

Torque control travel
on flyweight assembly dimension a
300/1250 AB 929L

mm

Speed regulation At

1 mm less control
rod travel

650	15,6-16,0	650	16,0	1270	15,6-16,0	580	0	200	6,3-8,1	-	-
				1300	10,0-14,8			300	4,2-6,2		
				1350	0 - 8,0			400	0,8-3,2		
				1420	0 - 1,5			480	0		

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

300/1250 AB984DL, 987DL

650	15,6-16,4	650	16,0	1290	13,0-15,4	570	0	200	6,5-8,1	750	15,8-16,0
				1320	6,0-13,7			350	2,8-5,0	900	15,3-15,6
				1340	0 - 10			410	0,6-3,2		
				1420	0			470	0		

Torque control travel
on flyweight assembly dimension a
300/1250 AB986DL

0,2

mm

Speed regulation At

1 mm less control
rod travel

650	15,6-16,4	650	16,0	1300	11,0-15,0	660	0	200	6,1-8,2	800	15,6-15,9
				1320	6,4-12,5			300	4,0-6,0	950	15,0-15,4
				1340	0 - 9,6			410	0 - 2,4		
				1420	0			560	0		

Torque control travel
on flyweight assembly dimension a

0,3

mm

Speed regulation At

1 mm less control
rod travel

--	--	--	--	--	--	--	--	--	--	--	--

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

B Setting values for the governor RQV

KHD 1 d

- 4 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-1325 AB 898L

ca. 68	1350	15,0-18,0	-	-	-	ca. 12	200	7,5-9,0	250	0,3-1,2
	1430	8,3-13,0					300	4,9-7,1	800	3,6-4,1
	1520	0 - 6,6					500	2,7-4,2	1350	8,2
	1600	0					890	0	-	-

300-1250 AB 898L

ca. 68	1300	14,5-17,6	-	-	-	ca. 12	200	7,3-9,0	250	0,3-1,3
	1380	6,8-12,4					300	4,9-7,1	800	3,4-4,2
	1450	0 - 7,2					500	2,3-4,8	1290	8,2
	1540	0					840	0	-	-

300-1150 AB 898L

ca. 68	1160	15,0-18,0	-	-	-	ca. 12	200	7,3-9,0	250	0,3-1,3
	1220	8,2-13,6					450	2,7-4,1	1160	8,3
	1290	0 - 7,3					650	0,7-1,8	-	-
	1370	0					800	0	-	-

300-1075 AB 898L

ca. 68	1160	15,0-18,0	-	-	-	ca. 12	200	7,5-9,0	250	0,3-1,2
	1240	8,0-13,2					300	5,1-7,0	700	4,0-4,5
	1320	0 - 7,2					500	1,1-2,4	1170	8,3
	1400	0					710	0	-	-

300/725-1075 AB 931L

ca. 68	1075	15,0-17,3	ca. 48	700	11,6-16,5	ca. 12	140	6,8-8,2	200	0,2-0,8
	1100	11,0-15,4		800	7,0-11,4		300	4,7-6,1	400	1,9-2,1
	1160	0 - 7,4		900	1,7- 4,5		450	3,6-4,0	650	1,9-2,6
	1220	0		950	0		700	1,7-3,9	900	4,6-5,2
							830	0	1075	8,5
									-	-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Torque-control travel mm
1	2	3	4	5	6	7	8	9	10	11

300-800/100 AB 9730L

Torque-control travel Maß a = 0,7 mm

ca. 50	1180	15,0-18,4	ca. 27	600	11,8-14,7	ca.13	150	8,4-11,5	200	0,5-1,2
	1250	6,8-12,0		700	7,6-10,3		250	5,7-8,8	600	3,2-3,6
	1300	0 - 7,6		840	0 - 2,4		420	0 - 3	1050	7,4-7,6
	1380	0		880	0		530	0	1170	8,3
									650	0
								400	0,7	

300-1325 AB 974 L

ca. 66	1325	15,0-17,8	-	-	-	ca. 10	150	6,6-8,0	1325	8,3
	1400	3,3-12,9					300	4,6-6,1		
	1480	0 - 6,8					450	2,7-3,8	-	-
	1560	0					600	1,8-3,2		
							860	0		

300-985/1325 AB 975L

ca. 68	1350	12,0-16,0	ca. 61	900	12,4-15,3	ca. 12	100	6,8-8,0	460	2,0-2,5
	1420	4,4-11,0		1000	5,4-8,1		250	5,6-7,2	1300	8,5
	1460	0 - 8,0		1100	0,5-1,0		400	3,3-4,8	—	—
	1560	0		1300	0,5-1,0		600	0,8-2,2		
				1380	0		710	0		

RQV 300-1325 AB976L

ca. 68	1350	15,2-17,8	-	-	-	ca. 12	100	min. 8	300	1,2-1,3
	1700	0 - 1					300	5,4-5,6	600	4,4-4,6
ca. 59	1375	9,4-10,4					400	1,5-3,7	1350	8,3
	1475	2,7-4,6					500	0 - 1	-	-

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Setting values for the governor

B.

RQV

KHD 1 d

- 6 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	Torque-control travel mm
1	2	3	4	5	6	7	8	9	10	11

300-1250 AB983DL, 990DL

Torque-control travel Maß a = 0,5 mm

ca. 66	1290	15,0-18,0	-	-	-	ca. 12	100	7,6-8,6	1290	8,3
	1370	7,5-12,7					300	5,2-6,6		
	1440	0 - 7,7					600	2,0-3,2	1200	0
	1530	0					850	0		
									600	0,5-0,6

300-1075 AB988DL

Torque-control travel Maß a = 0,5 mm

ca. 68	1100	15,0-18,0	-	-	-	ca. 12	100	5,2-8,0	1100	8,3
	1190	4,1-10,4					300	4,4-6,2		
ca. 66	1075	15,0-18,0					500	1,8-3,3	1075	0
	1140	8,0-13,0					720	0		
	1200	0 - 8							500	0,5-0,6
	1280	0								

RQV 300-1075 AB988DL

Torque-control travel Maß a = 0,5 mm

ca. 68	1160	15,0-18,0	-	-	-	ca. 12	200	7,5-9,0	250	0,3-1,2
	1240	8,0-13,2					300	5,1-7,0		
	1320	0 - 7,2					500	1,1-2,4	1080	0
	1400	0					710	0		
									500	0,5-0,6

RQV 1150 AB999L (V13274)

ca. 48	1100	14,6-20,5	-	-	-	-	-	-	1150	5,4
	1150	8,3-13,0							-	-
	1200	0 - 4,5								

RQV 300-1000 AB1006DL (V13121D)

Torque-control travel Maß a = 0,5 mm

ca. 68	1100	14,0-17,6	-	-	-	ca.12	200	7,5-8,9	250	0,3-1,1
	1180	6,2-12,0					300	4,5-7,0	600	3,8-4,4
	1250	0 - 6					450	1,0-2,3	1080	8,2
							650	0		
									1000	0
				600	0,5-0,6					

Setting values for the governor

3)

RQV

KHD 1 d -7-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

RQV 300/525-750 AB1009L (V13157)

ca. 68	760	15,0-18,4	ca. 52	525	14,0-20,0	ca. 12	175	7,1-8,2	250	0,3-1,2
	800	4,2-11,0		600	7,9-12,2		300	4,0-6,3	400	1,9-2,1
	815	0 - 8,0		650	3,0-6,2		400	3,6-4,0	600	3,7-4,5
	850	0		700	0		600	0	760	8,3
									-	-

RQV 300-800/1325 AB1014L

ca. 46	1330	18,0-21,6	ca. 30	600	11,9-14,3	ca. 10	100	9,4-12,2	150	0,8-1,4
	1420	9,2-14,8		720	6,6-9,0		300	4,1-7,9	700	4,0-4,4
	1500	0 - 8		840	0 - 2,3		400	0 - 3	1020-1300	7,4-7,6
	1590	0		880	0		510	0	1330	7,8
									-	-

RQV 300/800-1150 AB1016L (V12264), 1021 (V13155)

ca. 66	1160	15,0-18,4	ca. 48	760	11,2-16,4	ca. 12	200	6,1-7,7	250	0,5-1,2
	1200	8,4-13,8		850	7,6-11,8		450	3,6-4,0	400-600	1,9-2,1
	1250	0 - 7,6		950	2,8-5,6		650	3,3-4,0	1160	8,2
	1310	0		1030	0		900	0	-	-

RQV 300/650-900 AB1020L (V12263)

ca. 66	910	15,0-18,4	ca. 48	610	11,6-16,5	ca. 12	200	5,8-8,2	250	0,3-1,0
	980	0 - 7,5		700	6,0-9,8		400	3,6-4,6	450-500	1,9-2,1
	1020	0		790	0 - 2,0		600	1,8-4,0	910	8,3
				810	0		720	0	-	-

RQV 300-1250 AB1026DL

Torque-control travel

Maß a = 0,5 mm

ca. 68	1300	14,5-17,6	-	-	-	ca. 12	200	7,3-9,0	250	0,3-1,3
	1380	5,8-12,4					300	4,9-7,1	800	3,8-4,2
	1450	0 - 7,2					500	2,3-4,8	1290	8,2
	1540	0					840	0	1250	0
									500	0,5-0,6

Setting values for the governor

B.

EP/RSV..

KHD 1 d

-8-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-1325 A8 B 1084L

ca.69	1325	16,0	without auxoliary spring			ca.23	300	6,0	1300	0
	1400	7,7					100	19,0-21,0		
	1450	1,0					300	5,7-6,3		
	1370	10,4-12,3	with auxiliary spring				450	0,8-2,9	350	1,2-1,8
	1430	2,8-6,0					600	0 -1,0		
	1550	0,3-1,0								

300-1000 A7 B1002DL

ca.72	1000	16,0	without auxiliary spring			ca.23	300	6,0	980	0		
	1030	12,6					100	19 - 21			400	0,8-1,0
	1070	5,4					300	5,7-6,3				
	1050	7,0-10,2	with auxiliary spring									
	1100	2,0-4,4								400	3,0-4,4	
	1200	0,3-1,0								550	0 - 1	

300-1325 A8 B1002DL

ca.59	1325	16,0	without auxiliary spring	ca.25	300	6,0	1300	0
	1380	10,2			150	19 - 21		
	1420	5,4			300	5,7-6,3		
	1330	ca.10,5	with auxiliary spring		500	1,7-3,8	450	0,8-1,0
	1370	ca. 9,5			700	0 - 1		
	1520	0,3-1,0						

J10

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C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
F 6 L 413 F - 141 kW/192 PS / 2650/min								
1325	91,5 - 93,5	RQ: 600 RQV: 1340	1000 800	88,5-91,5 87,5-90,5	100		119-129	
F 8 L 413 F - 188 kW/192 PS / 2650/min								
1324	91,5 - 93,5	RQ: 600 RQV: 1340	1000 800	88,5-91,5 87,5-90,5	100		119-129	
F 10 L 413 F - 236 kW/320 PS / 2650/min								
1325	91,5 - 93,5	RQ: 600 RQV: 1340	1000 800	88,5-91,5 87,5-90,5	100		119-129	
F 12 L 413 F - 284 kW/384 PS / 2650/min								
1325	91,5 - 93,5	RQ: 600 RQV: 1340	1000 800	88,5-91,5 87,5-90,5	100		119-129	

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Caution: These changed values apply to governors without torque control

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7

192 PS / 2650 min - RQ 300/1325 AB 929 L
 1325 91,5-93,5 600 400 max. 84,5 100 119-129

192 PS / 2500 min - RQ 300/1250 AB 987 DL a = 0,2 mm
 1250 91,5-93,5 600 700 92,5-94,5 100 119-129
 400 82,5-88,5

186 PS / 2500 min - RQ 300/1250 AB 929 L
 1250 94,5-96,5 600 400 max. 84,5 100 119-129

176 PS / 2500 min - RQ 300/1250 ABV 12946 D a = 0,3 mm
 1250 85,5-87,5 600 1000 83,5-86,5 100 119-129
 700 86,5-89,5

168 PS / 2500 min - RQ 300/1250 ABV 12946 D a = 0,3 mm
 1250 75,7-77,5 600 1000 73,5-76,5 100 119-129
 700 71,5-74,5

176 PS / 2300 min - RQ 300/1150 ABV 12242 D a = 0,35 mm
 1150 83,5-85,5 600 1000 81,5-84,5 100 119-129
 700 85,5-88,5

160 PS / 2150 min - RQ 300/1075 ABV 12243 D
 1075 82,5-84,5 600 1000 80,5-83,5 100 119-129
 700 83,5-86,5

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C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1. 141 kW/192 PS / 2650/min - RQV 300-1325 AB974L, 300-950/1325 AB975L								
1325	91,5-93,5	1365-1375*	400	max. 84,5	100		119-129	
2. 141 kW/192 PS / 2500/min - RQV 300-1250 AB13392D, 300-800/1250 ABV13776D								
1250	91,5-93,5	1290-1300*	1000	91,0-94,0	100		119-129	a = 0,5mm
			700	91,5-94,5				770=4,5 (+ 13776D)
3. 137 kW/186 PS / 1500/min - RQV 300-1250 ABV12248								
1250	90,5-92,5	1290-1300*	400	max. 84,5	100		119-129	
4. 130 kW/176 PS / 2500/min - RQV 300-1250 AB983DL (V13122D) a = 0,5 mm								
1250	85,5-87,5	1290-1300*	1000	83,5-86,5	100		119-129	
			400	78,5-82,5				
5. 107 kW/145 PS / 2400/min - RQV 300-1200 ABV 12259D a =								
1250	71,5-73,5	1240-1250*	1000	68,0-71,0	100		119-129	
			700	67,0-70,0				
6. 124 kW/168 PS / 2300/min - RQV 300/800-1150 AB1021L (V13155)								
1150	84,5-86,5	1190-1200*			100		119-129	
7. 124 kW/168 PS / 2300/min - RQV 300-1150 AB999L (V13274)								
1150	85,5-87,5	1190-1200*			100		119-129	
					1196		17-20	
8. 101 kW/137 PS / 1800/min - RQV 300-900 ABV13156								
900	79,5-81,5	940-950*	400	max.82,5	100		119-129	
9. 101 kW/137 PS / 1800/min - RQV 900 ABV 13273								
900	80,5-82,5	910	936	17 - 20	100		119-129	
10. 90 kW/116 PS / 1500/min - RQV 300/525-750 AB 1009L (V13157)								
				RQV 750 ABV12507				
750	78,5-80,5	790-800*	400	max. 76,5	100		119-129	

Checking values in brackets

* 1 mm less control rod travel than col 2

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C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. 141 kW/192 PS / 2650/min - EP/RSV 300-1325 A 8 B 1084 L
1325 91,5-93,5 1365-1375* 400 max.82,5 100 119-129

2. 141 kW/192 PS / 2650/min - EP/RSV 300-1325 A 8 B 1002 DL
1325 91,5-93,5 1365-1375* 400 max. 82,5 100 119-129

4.

5.

F 6 L 413 FW

6.1 121 kW/165 PS / 2500/min - RQV 300-1250 ABV 13925 D a = 0,5 mm

2 108 kW/147 PS / 2500/min

1 1250 79,5-81,5 1290-1300* 800 78,0-81,0 100 119-129

2 1250 74,5-76,5 1290-1300* 800 71,0-74,0 100 119-129

7.1 115 kW/156 PS / 2300/min - RQV 300-1150 ABV 13926 D a = 0,5 mm

2 96 kW/131 PS / 2300/min

1 1150 78,5-80,5 1190-1200* 800 78,0-81,0 100 119-129

2 1150 68,5-70,5 1190-1200* 800 68,0-71,0 100 119-129

8.1 101 kW/137 PS / 2150/min - RQV 300-1075 ABV 13927 D a = 0,5 mm

2 91 kW/124 PS / 2150/min

1 1075 73,5-75,5 1115-1125* 800 74,0-77,0 100 119-129

2 1075 67,5-69,5 1115-1125* 800 68,0-71,0 100 119-129

9.

10.

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1.	188 kW/256 PS / 2650/min	-	RQ 300/1325 AB 929 L (V 11708)					
	1325 91,5-93,5 600		400 max. 84,5 100 119-129					
2.	188 kW/256 PS / 2500/min	-	RQ 300/1250 AB 987 DL (V 13391 D)	a = 0,2 mm				
	1250 91,5-93,5 600		700 90,5-93,5 100 119-129					
			400 82,5-88,5					
3.	183 kW/248 PS / 2500/min	-	RQ 300/1250 AB 929 L (V 12241)					
	1250 91,5-93,5 600		400 max.84,5 100 119-129					
4.	173 kW/235 PS / 2500/min	-	RQ 300/1250 ABV 12946 D	a = 0,3 mm				
	1250 85,5-87,5 600		700 83,5-86,5 100 119-129					
			400 max. 84,5					
5.	173 kW/235 PS / 2300/min	-	RQ 300/1150 ABV 12242 D	a = 0,35mm				
	1150 87,5-89,5 600		1000 88,0-91,0 100 119-129					
			700 88,0-91,0					
			400 max. 84,5					
6.	157 kW/213 / 2150/min	-	RQ 300/1075 ABV 12243 D	a = 0,3 mm				
	1075 82,5-84,5 600		1000 81,5-84,5 100 119-129					
			700 84,5-87,5					
			400 max. 84,5					

7.

8.

9.

10.

Checking values in brackets

* 1 mm less control rod travel than col 2

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C. Settings for Fuel Injection Pump with Fitted Governor

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①

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
1. <u>188kW/256 PS / 2650/min</u> - RQV 300-1325 AB 974 L (12247), 976 L (12630) AB 1014L (13605), 13629								
1325	91,5-93,5	1365-1375*	400	max.84,5	100	119-129	770=4,5	mmRW
2. <u>188kW/256 PS / 2500/min</u> - RQV 300-1250 AB 990 DL (V 13392 D), 14020 D RQV 300- 800/1250 ABV 13776 D a = 0,5 mm								
1250	91,5-93,5	1290-1300*	700	91,0-94,0 91,5-94,5	100	119-129		
3. <u>183kW/248 PS / 2500/min</u> - RQV 300-1250 AB 974 L (V 12248)								
1250	90,5-92,5	1290-1300*	400	max.84,5	100	119-129		
4. <u>173kW/235 PS / 2500/min</u> - RQV 300-1250 AV 983 DL (V13122 D) a = 0,5 mm								
1150	85,5-86,5	1290-1300*	1000 700	83,5-86,5 86,5-89,5	100	119-129		
5. <u>173kW/235 PS / 2300/min</u> - RQV 300-1150 ABV 13777 D a = 0,5 mm								
1150	84,5-86,5	1190-1200*	1000 700	82,5-85,5 86,5-89,5	100	119-129		
6. <u>165kW/224 PS / 2300/min</u> - RQV 300/800-1150 AB 1021 L (13155)								
1150	84,5-86,5	1190-1200*	400	max.84,5	100	119-129		
7. <u>165kW/225 PS / 2300/min</u> - RQV 1150 AB 999 L (V13274)								
1150	85,5-87,5	1160			100 1196	119-129 17 - 20		
8. <u>165kW/225 PS / 2200/min</u> - RQV 300-800/1100 AB 973 DL (V 13230 D) a = 0,7 mm								
1100	85,5-87,5	1140-1150*	1000 700	84,0-87,0 90,0-93,0	100	119-129	770=4,5	mmRW
9. <u>132kW/180 PS / 2150/min</u> - RQB 300-1075 ABV 13944 D a = 1,2								
1075	71,5-73,5	1115-1125*	1050 800	70,0-73,0 83,0-86,0	100	119-129		
10. <u>134kW/182 PS / 1800/min</u> -RQV 300/650-900 ABV 13156								
900	79,8-81,5	910	400	max.83,5	100	119-129		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

11. 134kW/182 PS / 1800/min - RQV 900 ABV 13273

900	80,5-82,5	910			100		119-129	
					936		17- 20	

12. 114kW/155 PS / 1500/min - RQV 300/525-750 AB 1009 L (V 13157)

750	78,5-80,5	760	400	max. 82,5	100		119-129	
-----	-----------	-----	-----	-----------	-----	--	---------	--

13. 114kW/155 PS / 1500/min - RQV 750 ABV 12507

750	78,5-80,5	760			100		119-129	
-----	-----------	-----	--	--	-----	--	---------	--

F 8 L 413 FW**16. 1. 162kW/220 PS / 2500/min - RQV 300-1250 ABV 13925 D** a = 0,5mm**2. 144kW/195 PS / 2500/min**

1. 1250	79,5-81,5	1290-1300*	800	78,0-81,0	100		119-129	
2. 1250	74,5-76,5	1290-1300*	800	71,0-74,0	100		119-129	

17. 1. 153kW/208 PS /2300/min - RQV 300-1150 ABV 13926 D a = 0,5mm**2. 129kW/175 PS/2300/min**

1. 1150	78,5-80,5	1190-1200*	800	78,0-81,0	100		119-129	
2. 1150	68,5-70,5	1190-1200*	800	68,0-71,0	100		119-129	

18. 1. 135kW/184 PS / 2150/min - RQV 300-1075 ABV 13927 D a = 0,5mm**2. 121kW/164 PS / 2150/min**

1. 1075	73,5-75,5	1115-1125*	800	74,0-77,0	100		119-129	
2. 1075	67,5-69,5	1115-1125*	800	68,0-71,0	100		119-129	

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. 188 kW/265 PS / 2650/min - EP/RSV 300-1325 A 8 B 1084 L

1325 91,5-93,5 1365-1375* 400 max. 84,5 100 119-129

2. 188 kW/256 PS / 2500/min - EP/RSV 300-1325 A 8 B 1002 DL

1325 91,5-93,5 1365-1375* 400 max. 84,5 100 119-129

3. 147 kW/200 PS / 1900/min - EP/RSV 300-1000 A 7 B 1002 DL

950 79,5-81,5 990-1000* 700 80,5-83,5 100 119-129
400 max. 84,5

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Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. <u>236kW/320 PS / 2650/min</u>			RQ 300/1325 (V11709)					
1325	91,5-93,5	600	400	max. 84,5	100		119-129	
2. <u>236kW/320 PS / 2500/min</u>			- RQ 300/1250 AB984DL				a = 0,2mm	
1250	91,5-93,5	600	1000	91,0-94,0	100		110-129	
			700	91,5-94,5				
3. <u>228kW/310 PS / 2500/min</u>			- RQ 300/1250 ABV 12244					
1250	89,5-91,5	600	400	max.84,5	100		119-129	
4. <u>217kW/295 PS / 2500/min</u>			- RQ 300/1250 AB 986DL (V13159D)				a = 0,3mm	
1250	86,5-88,5	600	1000	84,5-87,5	100		119-129	
			700	87,5-90,5				
5. <u>216kW/293 PS / 2300/min</u>			- RQ 300/1150 ABV 12245D				a = 0,35mm	
1150	84,5-86,5	600	1000	82,5-85,5	100		119-129	
			700	86,5-89,5				
6. <u>197kW/267 PS / 2150/min</u>			- RQ 300/1075 ABV 12246D				a = 0,35mm	
1075	83,5-85,5	600	1000	81,5-84,5	100		119-129	
			700	84,5-87,5				

7.

8.

9.

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

-18-

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. 236kW/320 PS / 2650/min - RQV 300-1325 AB898L (V12249)
300- 800/1325 ABV12271

1325 91,5-93,5 1365-1375* 400 max. 84,5 100 119-129

2. 228kW/310 PS / 2550/min - RQV 300-1275 ABV13664D

a = 0,5mm

1275 90,5-92,5 1315-1325* 1000 90,5-92,5 100 119-129
700 91,0-94,0

3. 236kW/320 PS / 2500/min - RQV 300-1250 AB1026DL

a = 0,5mm

1250 91,5-93,5 1290-1300* 1000 91,0-94,0 100 119-129
700 90,0-93,0

4. 228kW/310 PS / 2500/min - RQV 300-1250 AB898L (V11962)

1250 90,5-92,5 1290-1300* 400 max.84,5 100 119-129

5. 217kW/295 PS / 2500/min - RQV 300-1250 ABV12118D

a = 0,5mm

1250 86,5-88,5 1290-1300* 1000 84,5-87,5 100 119-129
700 87,5-90,5

6. 193kW/262 PS / 2500/min - RQV 300/850-1250 ABV 12294

1250 79,5-81,5 1290-1300* 400 max. 82,5 100 119-129

7. 216kW/293 PS / 2300/min - RQV 300-1150 AB988DL (V13119D)

a = 0,5mm

1150 84,5-86,5 1190-1200* 100 119-129
700 83,0-86,0
400 75,0-79,0

8. 216kW/293 / 2300/min - RQV 300/800-1150 AB1016L (V12264)

1150 84,5-86,5 1190-1200* 400 max.82,5 100 119-129

9. 206kW/280 PS / 2300/min - RQV 300-1150 AB898L

1150 79,5-81,5 1190-1200* 400 max. 82,5 100 119-129

10. 197kW/267 PS / 2150/min - RQV 300-1075 AB988DL (V12130D)

a = 0,5mm

1075 83,5-85,5 1115-1125* 1000 81,5-84,5 100 119-129
700 84,5-87,5
400 max. 82,5

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

-19-

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
11. 197kW/267PS / 2150/min			- RQV 300/750-1075	AB931L	(V12575)			
1075	83,5-85,5	1115-1125*	400	max. 82,5	100		119-129	

12. 184kW/250PS / 2000/min			- RQV 300-1000	AB1006DL	(V13121D)	a=0,5mm	
1000	80,5-82,5	1040-1050*	700	83,5-86,5	100		119-129

13. 184kW/250PS / 2000/min			- RQV 300-1000	ABV13550			
1000	80,5-82,5	1040-1050*	400	max. 82,5	100		119-129

14. 168kW/228PS / 1800/min			- RQV 300/650-900	AB1020L	(V12263)		
900	80,5-82,5	940-950*	400	max. 82,5	100		119-129

15. 142kW/193PS / 1500/min			- RQV 300/525-750	AB998L	(V12262)		
750	78,5-80,5	790-800*	400	max. 82,5	100		119-129

F 10 L 413 FW

16.1 202kW/275PS/2500/min			- RQV 300-1250	ABV13928D		a=0,5mm	
2 180kW/245PS/2500/min							
1. 1250	79,5-81,5	1290-1300*	800	78,0-81,0	100		119-129
2. 1250	74,5-76,5	1290-1300*	800	71,0-74,0	100		119-129

17.1 192kW/261PS/2300/min			- RQV 300-1150	ABV13929D		a=0,5mm	
2 161kW/219PS/2300/min							
1. 1150	78,5-80,5	1190-1200*	800	78,0-81,0	100		119-129
2. 1150	68,5-70,5	1190-1200*	800	68,0-71,0	100		119-129

18.1 168kW/228PS/2150/min			- RQV 300-1075	ABV13930D		a=0,5mm	
2 161kW/219PS/2150/min							
1. 1075	73,5-75,5	1115-1125*	800	74,0-77,0	100		119-129
1075	67,5-69,5	1115-1125*	800	67,0-70,0	100		119-129

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

-20-

①

engine power Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. 283kW/384 PS / 2650/min - RQ 300/1325 AB930L (V11709)

1325 91,5-93,5 600 400 max. 84,5 100 119-129

2. 283kW/384 PS / 2500/min - RQ 300/1250 AB984DL (V13407D)

a = 0,2 mm

1250 91,5-93,5 600 1000 91,0-94,0 100 119-129
700 91,5-94,5
400 82,5-88,53. 274kW/372PS / 2500/min - RQ 300/1250 AB930L (V12244)

1250 89,5-91,5 600 400 max. 84,5 100 119-129

4. 260kW/353PS / 2500/min - RQ 300/1250 AB986DL (V13159D)

a = 0,3 mm

1250 86,5-88,5 600 1000 84,5-87,5 100 119-129
700 87,5-90,5
400 max. 82,55. 259kW/352PS / 2300/min - RQ 300/1150 ABV 12245D

a = 0,35 mm

1150 84,5-86,5 600 1000 82,5-85,5 100 119-129
700 86,5-89,5
400 max. 82,56. 236kW/320PS / 2150/min -1000 81,5-84,5 100 119-129
700 84,5-87,5
400 max. 82,5

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

-21-

①

engine power Full-load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

1. 283kW/384 PS / 2650/min - RQV 300-1325 AB898L (V12249)

1325 91,5-93,5 1365-1375* 400 max. 84,5 100 119-129

2. 283kW/384 PS / 2500/min - RQV 300-1250 AB1026DL (V13408D)

a = 0,5 mm

1250 91,5-93,5 1290-1300 1000 91,0-94,0 100 119-129
700 91,5-94,53. 274kW/372 PS / 2500/min - RQV 300-1250 AB898L

1250 89,5-91,5 1290-1300* 400 max. 84,5 100 119-129

4. 260kW/353 PS / 2500/min - RQV 300-1250 ABV 13118D

a = 0,5 mm

1250 86,5-88,5 1290-1300* 1000 84,5-87,5 100 119-129
700 87,5-90,5
400 max. 82,55. 1. 246kW/335 PS / 2500/min
2. 147kW/200 PS / 2500/min - RQV 300-1250 ABV 13287D

a = 0,55 mm

1250 82,5-84,5 1290-1300* 1000 80,5-83,5 fuel overquantity
700 84,0-87,0 100 119-129
1250 50,5-52,5 1000 50,0-53,1
700 39,0-42,06. 243kW/330 PS / 2500/min - RQV 300-1250 ABV 13621D

a = 0,5 mm

1250 78,5-80,5 1290-1300* 1000 77,0-80,0 100 119-129
700 73,0-76,07. 259kW/352 PS / 2300/min - RQV 300-1150 AB898L, 1016L (V12264)

1150 84,5-86,5 1190-1200* 400 max. 82,5 100 119-129

8. 259kW/352 PS / 2300/min - RQV 300-1150 AB988DL (V13118D)

a = 0,5 mm

1150 84,5-86,5 1190-1200* 1000 82,5-85,5 100 119-129
700 86,5-89,5
700 86,5-89,59. 247kW/336/S / 2300/min - RQV 300-1150 AB962L

1150 83,5-85,5 1190-1200* 400 max. 82,5 100 119-129

10. 236kW/320 PS / 2150/min - RQV 300/750-1075 AB931L (V12575)

1075 83,5-85,5 1190-1200* 400 max. 82,5 100 119-129

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	

11. 236kW/320 PS / 2150/min - RQV 300-1075 AB988DL (V13120D) a = 0,5 mm
ABV13162D

1075 83,5-85,5 1115-1125* 1000 81,5-84,5 100 119-129
700 84,5-87,5
400 max. 82,5

12. 199kW/270 PS / 2150/min - RQV 300-1075 ABV13945D a = 1,2 mm

1075 71,5-73,5 1115-1125* 1050 70,5-72,5 100 119-129
800 83,0-86,0

13. 221kW/300 PS / 2000/min - RQV 300-1000 AB1006DL (V13121D) a = 0,5 mm
ABV13163D

1000 80,5-82,5 1040-1050* 700 83,5-86,5 100 119-129

14. 200kW/272 PS / 2000/min - RQV 300-1000 ABV13550

1000 80,5-82,5 1040-1050* 100 119-129

15. 202kW/275 PS / 1800/min - RQV 300-900 ABV13549
300/650-900 ABV12263

900 80,5-82,5 940-950* 100 119-129

16. 171kW/232 PS / 1500/min - RQV 300-750 AB998L (V12262)

750 80,5-82,5 790-800* 400 max. 82,5 100 119-129

F12 L 413 FW

17. 1.-243kW/330 PS / 2500/min - RQV 300-1250 ABV13928 D a = 0,5 mm
2.-216kW/294 PS / 2500/min

1. 1250 79,5-81,5 1290-1300* 800 78,0-81,0 100 119-129

2. 1250 74,5-76,5 1290-1300* 800 71,0-74,0

18. 1-230kW/313 PS / 2300/min - RQV 300-1150 ABV13929D a = 0,5 mm
2-193kW/262 PS / 2300/min

1. 1150 78,5-80,5 1190-1200* 800 78,0-81,0 100 119-129

2. 1150 68,5-70,5 1190-1200* 800 68,0-71,0

19. 1-202kW/274 PS / 2150/min - RQV 300-1075 ABV13930D a = 0,5 mm
2-183kW/248 PS / 2150/min

1. 1075 73,5-75,5 1115-1125* 800 74,0-77,0 100 119-129

2. 1075 67,5-69,5 1115-1125* 800 68,0-71,0

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 e

5. Edition

En

PES 5 A 95 D 410 LS 2488
Komb.-Nr. 0 400 845 029

RQV 250-1100 AB 850 DL

supersedes 5.78

company MAN

engine D2565 M/MF
141 kW

1-3-5-4-2 je 72° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,5-1,6 \\ (1,45-1,65) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,2+0,1	11,8-12,0	0,3(0,6)			
250	5,7-5,9	1,1-1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 50	1140	14,4-17,6	-	-	-	ca. 13	100	min. 7,3	200	0,7-0,9
ca. 42	10,2	1140-1150					250	5,7-5,9	500	3,5-3,8
	4,0	1165-1195					315-375	2,0	800	5,0-5,4
	1300	0 - 1,0					450 max.	1,0	100	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	117,5-119,5 (115,5-121,5)	1140-1150*	800	116,5-120,5 (114,5-122,5) max. 116,5 (max. 118,5)	100	15,5-16,5 mm RW	1100	11,2+0,1
			500		250	6,0 mm RW	800	11,2+0,3
							500	11,3+0,2

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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K1

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 e 3
1. Edition

En

PES 5 A 95 D 410 LS 2488 y RQV 250-1100 AB 850 DL

Komb.-Nr. 0 400 845 041

1-3-5-4-2 je 72° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company MAN
engine D 2565
Saviem

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5-1,6$
($1,45-1,65$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,	11,8-12,0	0,3(0,6)			
250	5,7-5,9	1,4-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1140	14,4-17,6	-	-	-	ca. 13	100	min. 7,4	200	0,7-0,9
ca. 42	10,0	1140-1150					250	5,7-5,9	500	3,5-3,8
	4,0	1175-1205					315-375	2,0	800	5,0-5,4
	1,5-1,0	0 - 1,0					450 max.	1,0	1100	7,7

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	117,5-119,5 (115,5-121,5)	1140-1150*	750	114,5-118,5 (112,5-120,5)	100	13,7-14,3 mm RW	1100	11,0+0,1
			500	111,5-115,5 (109,5-117,5)	250	6,0 mm RW	750	11,3+0,2
							500	11,4+0,1

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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K2

K2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 e 2
1. Edition

En

PES 5 A 95 D 410 LS 2488 Z RQV 250-1100 AB 850 DL

supersedes
company MAN
engine D 2565
124 kW (168 PS)

1-3-5-4-2 je 72° ±0,5° (+75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,9+0,1	9,5-9,7	0,3(0,6)			
250	5,7-5,9	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 50	1140 1200 1220 1300	14,4-17,6 4,0-10,6 0 - 8,0 0 - 1,0	-	-	-	ca. 13	100 200 300 410	7,5-10,2 5,7-8,5 2,5-5,3 0	200 500 800 100	0,7-0,9 3,5-3,8 5,0-5,4 7,7

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	94,5-96,5 (92,5-98,5)	1140-1150*	800 500	98,5-102,5 (96,5-104,5) 95,0-98,0 (93,0-100,0)	100 250	15,5-16,5 mm RW 6,0 mm RW	1140 5500	0 4-0,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,0 c 6

1. Edition

En

PE 10 A 95 D 520/5 LS 2501

RQV 250-1150 AB 1067 R

Komb.-Nr. 0 400 649 213

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes

company MAN

engine D 2530 MTE
294 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,7-1,8}{(1,65-1,85)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,0+0,1	12,5-12,7	0,3(0,6)			
250	5,9-6,1	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	200	0,6-1,0
ca. 48	11,0 4,5 1400	1190-1200 1245-1275 0-1,0					250	5,9-6,1	520	3,8-4,0
							325-385	= 2,0	830	5,2-5,5
							450	max. 1,0	1150	7,7

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,5 bar 124,5-126,5 (122,5-128,5)	1190-1200*	LDA 750	0,5 bar 124,5-127,5 (122,5-129,5)	100	170,0-180,0 (167,0-183,0)	1150 750 500	12,0+0,1 12,4+0,2 12,4+0,2
			LDA 500	0 bar 77,5-80,5 (75,5-82,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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K4

D. Adjustment Test for Manifold Pressure Compensator

MAN 16,0 c 6

- 2 -

Test at n 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure - bar	Gauge pressure = bar	diminution difference mm (1)
PE10A..LS2501 + RQV..AB1067R	0		9,9 - 10,0
		0,20	10,3 - 10,6
		0,25	11,4 - 11,5
		0,50	12,6 - 12,7

Notes

(1) when n

rev/min and
gauge pressure -

bar (- maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 k 1

4. Edition

En

Testoil-ISO 4113

PE 6 A 95 D 410 RS 2525, X, Y RSV 250-1200 A 5 B 2013 DL

supersedes 11.82

company

DAF

engine

DN825 (X, Y)

DHP/DHTD 825

Note VDT-I-420/115

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke (1,95-2,15) mm (from BDC)
 2,00-2,10 RW 9

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,6+0,1	10,7 - 10,9	0,3(0,6)			
250	6,0-6,2	0,8 - 1,0	0,3(0,5)			
Port closing difference between control rod travel 9 mm and max. = 3 - 4° camshaft						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	250	5,6	1000	12,6+0,1
	X	4,25							400	12,6+0,2
							250	6,0-6,2	300	12,8+0,4
⑤ ca. 55	1230-1240	11,6					595-655	= 2,0		
	1330-1360	4,0								
	1490	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat. Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp 40°C (104°F) rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 106,5-108,5 (104,5-110,5)	1230-1240*	LDA 600	0 bar 82,5 - 85,5 (80,5 - 87,5)	100	121,5-131,5 (118,5-134,5) = 19,5-21,0 mm RW	250	6,1
X 1000	90,5- 92,5	(12,0mmRW)	X 600	77,0 - 80,0				
Y 1000	99,0-101,0	(12,5mmRW)	Y 600	77,0 - 80,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

K6

5.84

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D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 k 1 - 2 -

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
2525 + 2013 DL	0,70	0,30 0,26 0	12,6 - 12,7 12,3 - 12,4 12,0 - 12,2 11,6 - 11,7

Notes*:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p

9. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 LS 2542 RQV 250-1100 AB 850 DL
Komb.-Nr. 0 400 846 420

supersedes 10.83
company MAN
engine D 2566 M /MF
177 kW/2200 min⁻¹
MAN-Nr. 1-7943

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,5-1,6}
(1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5 - 12,7	0,3(0,6)			
250	5,9-6,1	0,9 - 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca. 13	100	min. 7,5	200	0,5-1,2
ca. 42	11,0	1140-1150					250	5,9-6,1	600	3,8-4,1
	4,0	1180-1210					325-385=2,0mm		1140	8,3
	1300	0 - '1,0					450 max. 1,0			

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	750	113,0-116,0 (110,5-118,5)	100	121,5-131,5 (118,5-134,5)	-	-
			500	107,5-113,5 (105,0-116,0)		= 14,0-14,6 mm RW		
					250	6,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

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K8

K8

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 1

6. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 LS 2542 Z RQV 250-1100 AB 1038 DL (1)
.. LS 2542 RQ 250/1100 AB 1049 DL (2)
RQ 250/1050 AB 965 DL (3)

superseded 0.83

company MAN

engine D2566

Komb.-Nr. 0 400 846 425 (1) MAN-Nr. 1-7960

(1) MSFV-162 kW/2200 min/1

0 400 846 427 (2) MAN-Nr. 1-7946

(2) MFOR-162 kW/2200 min/1

0 400 846 418 (3) MAN-Nr. 1-7941

(3) MF -172 kW/2200 min/1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60 mm (from BDC) Zy1. 6
(1,45-1,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	11,3 - 11,5	0,3(0,6)	12,0-12,1	12,9 - 13,1	n 1050
250	5,9-6,1	0,8 - 1,5	0,3(0,5)	6,5-6,7	1,1 - 1,7	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1140	14,4-17,6	-	-	-	ca.13	100 250 320-380 450	min.7,5 5,9-6,1 =2,0 0-1	200 700 1140	0,5-1,2 4,3-4,6 8,3
ca.42	10,3 4,0 1300	1140-1150 1175-1205 0 - 1,0				3a				

Torque control travel a = 0,35 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5a) (5b)		Starting fuel delivery Idle switching point (6)		Torque-control travel (5) Control rod travel mm	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	9 +1, 1
1100	112,5-114,5 (110,5-116,5)	1140-1150*	700	102,5-105,5 (100,5-107,5)	100	124,0-134,0	1100	11,3
			500	max. 106,5 (108,5)	250	6,0 mm RW	700	11,7
						100-170 (80-190)	500	11,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

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B. Governor Settings

(2)

MAN 11,1 p 1

- 2 -

(2)

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	10,2	1145-1160	250	6,0	100	min. 7,5	1100	11,2-11,3
								250	5,9-6,1	845	11,2-11,5
				4,0	1185-1215			360-400	=2,0	750	11,4-11,6
										600	11,6-11,7

Torque control travel on flyweight assembly dimension a **0,3** mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
(2)							
1100	112,5 - 114,5 (110,5 - 116,5)			700	102,5 - 105,5 (100,5 - 107,5)	100	125,0-135,0 (122,0-138,0) = 15,0-16,0mm RW
				500	max. 106,5 (max. 108,5)	250	6,0 mm RW

Checking values in brackets

B. Governor Settings

(3)

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	11,0	1095-1110	250	5,6	100	min. 8,1	-	-
								250	6,5-6,7		
				4,0	1145-1170			375-415	=2,0		
1250	0 - 1							450	0 - 1		

Torque control travel on flyweight assembly dimension a **0** mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
(3)							
1050	127,5 - 129,5 (125,5 - 131,5)			500	max. 113,5 (115,5)	100	124,0 - 134,0 6,0 mm RW

En Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 9

5. Edition

En

PES 6 A 95 D 410 LS 2542
Korn.-Nr. 0 400 846 471

RQV 250-1100 AB 1134 L

supersede 10.83

company MAN

engine D 2566 ME/Fendt
162 kW/2200 min⁻¹
MAN-Nr. 2-7196

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 - 1,6 mm (from BDC) Zyl. 6; RW = 9,0-12,0 mm
(1,45-1,65)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	12,5+0,1	12,6-12,8	0,35(0,6)			
250	7,5-7,7	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 14	100	min. 9,1	200	0,7-0,9
ca. 48	10,2 4,0 1300	1140-1150 1175-1205 0-1,0					250 440	7,5-7,7 max. 1,0	500 800 100	3,7-4,1 5,4-5,7 8,1

Torque control travel a = 1,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery Idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	126,0-128,0 (124,0-130,0)	1140-1150*	1100 500	111,5-115,5 (109,5-117,5) 113,5-117,5 (111,5-119,5)	100	125,0-135,0 (122,0-138,0) = 15,4-16,0 mm RW	1100 500 940 1025	11,2+0,1 12,5+0,1 12,1+0,1 11,4+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.84

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 20

2. Edition

En

PES 6 A 95 D 410 LS 2542
Komö.-Nr. 0 400 846 516

RQV 250-1100 AB 1177 DL

supersedes 0.83
company: MAN
engine: D 2566 M/NF
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,5-1,6}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5 - 12,7	0,35(0,6)			
250	5,3-6,1	0,9-1,4	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1115	15,2-17,8	-	-	-	ca. 13	100	min. 8,2	200	0,7-0,9
ca. 47	11,0	1140-1150					250	6,7-6,9	500	3,4-3,8
	4,0	1180-1210					335-395=2,0		800	4,9-5,4
	1300	0-1,0							1100	7,6

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	750	113,0-116,0 (110,5-118,5)	100	121,5-131,5 (118,5-134,5)	-	-
			500	107,5-113,5 (105,0-116,0)		14,7-15,3 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 9,2 i 3

2. Edition

En

PES 5 A 95 D 410 LS 2543 RQ 250/11(UAB 1137-3 L

supersedes 9.83

company MAN

Komb.-Nr. 0 400 845 065

engine D 2565 MF

1 - 3 - 5 - 4 - 2 je $72^0 \pm 0,5^0$ ($\pm 0,75^0$)141 kW/2200 min⁻¹

MAN-Nr. 2-7435

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,45-1,65) mm (from BDC) Zyl. 5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,1	11,2-11,3	0,3(0,6)			
250	6,9-7,1	1,4-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,0	1145-1160	250	6,0	100	min. 7,5	1100	11,0-11,1
				4,0	1185-1215			250	5,9-6,1	600	11,8-11,9
								355	395=2,0	790	11,6-11,8
										955	11,1-11,4

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1100	111,5-112,5 (109,5-114,5)		-	750	106,5-110,5 (104,5-112,5) max. 111,5 (max. 113,5)	100	150,0-160,0 (147,0-163,0) =15,7-16,3 mm RW
				500		250	6,0 mm RW

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 o 2

2. Edition

En

PES 5 A 95 D 410 LS 2543 RQV 250-1100 AB 1178 L

Komb.-Nr. 0 400 845 076

1 - 3 - 5 - 4 - 2 je $72^0 \pm 0,5^0$ ($\pm 0,75^0$)

supersedes 9.83

company: MAN

engine D 2565 ME
141 kW/2200 min⁻¹
MAN-Nr. 2-7041

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,5-1,6$
($1,45-1,65$) mm (from BDC) 7yl. 5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,1	11,1-11,3	0,35(0,6)			
250	5,9-6,1	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1125	15,2-17,8	-	-	-	ca. 12	100 250	min. 7,5 5,9-6,1	150 550 900 1200	0,4-0,7 4,0-4,4 6,0-6,5 10,2
ca. 48	10,0 4,0 1300	1140-1150 1170-1200 0 - 1,0				3a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤ travel Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
1100	110,5-112,5 (108,5-114,5)	1140-1150*	-	-	100 250	146,5-156,6 (143,5-159,6 = 15,6-16,2 mm RW 6,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

K14

7.84

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K14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 m
6. Edition

En

PE 6 A 85 D 320 RS 2546 RSV 250-750 A 7 B 2125 R

supersedes 4.83
company DAF
engine DD 575 DF

Komb.-Nr. 0 400 676 168

Values apply to fuel-injection test tubing

1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,15-2,25}{(2,1 - 2,3)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,1+0,1	6,0 - 6,2	0,3(0,45)			
250	8,4-8,6	0,8 - 1,4	0,2(0,4)			

Port closing difference between control-rod travel 9 mm and max. 3,0 - 4,0 camshaft

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 16	250	8,5	-	-
	x = 4,5						250	8,4-8,6		
ca. 40	11,1	770-780					260-	320=2,0		
2a	4,0	785-805						**		
	955	0,3-1,7								

** Set idle-speed auxiliary spring at 2 mm control-rod travel, then turn back 1/2 turn.
The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to 1 rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
750	60,5 - 62,5 (58,5 - 64,5)	770-780*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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K15

KAS

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 5,1 e

1. Edition

En

Testoil-ISO 4113
⁸⁰
 PES 5 A D 410/3 RS 2554

RQV 300-1400 AB1048DL

supersedes

company K H D

engine F5 L912

 1 - 3 - 5 - 4 - 2 $\pm 0,50$
 0 - 72 - 144 - 216 - 288⁰ ($\pm 0,75$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $1,90 - 2,00$
 ($1,85 - 2,05$) - mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1400	11,0	5,9 - 6,1	0,2(0,35)			
	+ 0,1					
300	8,9-9,1	0,9 - 1,5	0,2(0,3)			
1000/750	- - -	C, 4-5	0,3(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1400 1850	15,2-17,8 0 - 1	-	-	-	ca. 12	100 300 515-575 750	min. 7,5 5,9-6,1 = 2,0 0 - 1	300 550 1480	0,6-0,8 2,6-2,8 7,8
ca. 62	10,0 4,0	1480-1490 1710-1740					390-490			

Torque control travel a $0,5$ mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery Control rod stop Test oil temp 40°C (104°F)		Rotational speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		MAXIMUM rotational speed torque control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	$\pm 0,1$
1400	60,0 - 61,0 (58,5 - 62,5)	1480-1490*	1000	55,0 - 57,0 (53,5 - 58,5)	100	119,5-129,5	1400 1075 825 500	11,0 11,3 11,7 12,0
			750	55,0 - 57,0 (53,5 - 58,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.79

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,0 f 2

2. Edition

En

PE 10 A 90 D 420/5 LS 2567

ROV 250-1250 AB 1182 R

supersedes 9.83

Komb.-Nr. 0 400 649 238

company: MAN

engine: D 2530 MXF

235 kW/2500 min⁻¹

MAN-Nr. 2-7448

1- 8-7- 6 - 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,5-1,6}{(1,45-1,65)}$ mm (from BDC) $\frac{1}{10}$; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,6+0,1	10,2 - 10,3	0,3(0,45)			
250	7,2-7,4	0,7-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1210	15,2-17,8	-	-	-	ca. 13	100	min. 8,8	200	0,7-0,9
ca. 49	11,6 4,0 1500	1290-1300 1385-1415 0 - 1,0				330-440	250	7,2-7,4	550 1000 1350	3,3-3,7 6,2-6,4 9,5

Torque control travel a = 0,70 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	101,5-102,5 (99,5-104,5)	1290-1300*	800 500	95,5-98,5 (93,5-100,5) max. 89,0 (max. 91,0)	100 250	135,0-145,0 (132,0-148,0) =18,3-18,7 mm RW 7,0 mm RW	1250 500 955 1120	12,6+0,1 13,3+0,1 13,1+0,2 12,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.84

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K17

K17

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 u

7. Edition

7.

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2569 RQV 300-1400 AB 1065 DL

supersedes 10.81
company Daimler-Benz
OM 352
engine 96 kW (130 PS)

Set the stop screw to control-rod travel 3 - 3,5 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,25-2,35}{(2,20-2,40)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	10,1+0,	5,9 - 6,0	0,3 (0,45)			
300	8,4-8,6	1,0 - 1,6	0,2(0,4)			
500	11,3+0,	C, Sp.4-5	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	-	-	-	ca.21	100	min.10,0	300	1,1
	1630	0 - 1,0					300	8,4-8,6	670	3,9-4,1
							550-610	= 2,0	450	8,0
ca. 65	9,1	1440-1450								
	4,0	1530-1560								

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	59,5 - 60,5 (57,5 - 62,5)	1440-1450*	500	51,5 - 54,5 (49,5 - 56,5)	100	72,25-82,25 bei 14,4 - 15,0 mm RW 100-220 (80-240)	1400	10,1
							1000	10,6
							630	11,1
							500	11,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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K.18

K18

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 u 7

1. Edition

PES 6 A 90 D 410 RS 2569 RQV 300-1400 AB 1077 L
Komb.-Nr. 0 400 846 445

supersedes:
company Daimler-Benz
OM 352
engine 96 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $25-2,35$
(2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,6+0,1	6,2-6,3	0,3(0,45)			
300	5,5-5,7	1,1-1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1420	15,2-17,8	-	-	-	ca. 12	100	min.7,1	250	0,8-1,0
ca. 60	9,7	1440-1450					300	5,5-5,7	630	3,2-3,5
	4,0	1525-1555					525-585	2,0	1020	5,8-6,0
	1700	0-1,0				395-465	700	max.1,0	1400	8,3

Torque control travel a = 0,35 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1400	61,5-62,5 (59,5-64,5)	1440-1450*	1000	59,5-61,5 (57,5-63,5)	100	12,2-12,8 mm RW	1400	10,6+0,1
			500	53,0-56,0 (51,0-58,0)			900	10,6+0,1
							725	10,8+0,2
							500	10,9+0,1

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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K19

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 3,8 n 10

2. Edition

En

PES 4 A 90 D 410 RS 2570
Komb.-Nr. 0 400 874 237

RSV 350-1300 A 2 B 1126-2 L

superseded by 6.83
Daimler-Benz
company OM 314
engine 55 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,25-2,35}{(2,20-2,40)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque: control valve) mm 6
1300	10,9+0,1	6,0-6,1	0,3(0,45)			
350	8,9-9,1	0,9-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-		350	8,5	1300	10,9-11,0
	$x = 4,0$						100	min. 19,5	500	11,6-11,8
							350	8,9-9,1	700	11,2-11,5
							595-655	=2,0		
ca. 46	9,9	1340-1350								
2a	4,0	1370-1400								
	1550	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1300	60,0-61,0 (58,0-63,0)	1340-1350*	500	48,0-52,0 (45,5-54,5)	100	78,0-88,0 (75,0-91,0)	350	8,5 **	

Checking values in brackets

* 1 mm less control rod travel than col 2

** Adjusting the idle-speed auxiliary spring

5.84

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K20

K20

Test Bench 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 8,3 n

5. Edition

En

Testoil-ISO 4113

 PE 6 A 95 D 410 RS 2575 RSV 250-750 A7B2124L
 Komb.-Nr. 0 400 676 166

 superseded by 83
 DAF
 company
 engine DU 825
 Generator

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) RW 9,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,5+0,1	9,9 - 10,1	0,4(0,7)			
250	6,0-6,2	0,7 - 1,3	0,2(0,4)			
Port closing difference between control rod travel 9 mm and max. = 3 - 4° camshaft						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3-1,0	-	-	-	ca. 15	250	6,1	-	-
	x =	4,25					250	**		
ca. 40	11,5	770-780					260-320	= 2,0 mm		
⑤	4,0	785-805								
	955	0,3-1,7								

 ** Set idle-speed auxiliary spring at 2.0 mm control-rod travel,
 then 1/2 turn back.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ... rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
750	98,5 - 100,5 (96,5 - 102,5)	770-780*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 n

4. Edition

En

PE 6 A 90 D 320 RS 2577

RSV 250-750 A 7 B 2125 R

supersedes 3.83
company DAF
engine DT 615

Komb.-Nr. 0 400 676 167

Specifications apply to test tubing 1 680 750 015 !

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

RW = 9,0 mm

Port closing at prestroke 2,20-2,30 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
750	11,0+0,1	7,4 - 7,6	0,4 (0,55)			
250	5,9-6,1	0,7 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 15	250	6,0	-	-
	X = 5,0							**		
ca. 40	10,0	770-780					260-320	= 2,0		
2a	4,0	785-805								
	955	0,3-1,7								

The numbers denote the sequence of the tests Set idle-speed auxiliary spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104 F)		Note changed to rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
750	74,0-76,0 (72,0-78,0)	/60-77°C*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

Port closing difference between control-rod travel 9 mm
and max. = 2.5 - 3.5° camshaft.

* 1 mm less control rod travel than col 2

5.84

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K22

K22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 GAN 9,7 a

2. Edition

En

PES 6 A 95 D 420 LS 2580

RSV 200-750 A 7 B 2071 R
A 7 C 2071 R

supersedes 4.81

company Ganz-Mavag

engine D 2156 HM6

Komb.-Nr. 0 400 876 282

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
720	10,3±0,1	10,1-10,3	0,3(0,6)			
200	5,9-6,1	1,1-1,5	0,2(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	- - -			ca. 12	200	5,4-5,6	720	10,3-10,4
	X =	3,0					100	min. 19,0	375	10,3-10,5
ca. 40							200	5,9-6,1	250	11,5-12,1
							295-355	2,0		
							400	max. 1,0		
2a	9,3	760-770								
	4,0	765-795								
	925	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
720	100,5-102,5 (98,5-104,5)	760-770*	-	-	-	100	19,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.84

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Testbench 4113

K23

K23

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 15,0 d 2

3. Edition

En

PE10A95D 520/5 LS 2604

RQV 250-1150AB1183 R

supersedes 5.84

Komb.-Nr. 0 400 649 239

company MAN

engine D 2840 MF

268 kW/2300 min⁻¹

MAN-Nr. 2-7449

1- 8-7- 6 - 3 - 5 - 2 - 10- 9 - 4

0-27-72-99-144-171-216-243-288-315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

port closing at prestroke (1,65-1,85) mm (from BDC) Zyl. 10; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,	12,5-12,7	0,35(0,6)			
250	6,9-7,	1,1 - 1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 12	100	min. 8,5	200	0,5-0,7
ca. 62	11,0 4,0 1400	1190-1200 1280-1310 0 - 1,0					250 400-460 = 2,0	6,9-7,1 = 2,0	550 1000 250	4,5-4,7 6,5-6,9 8,6-8,9

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	124,5-126,5 (122,5-128,5)	1190-1200*	650 500	113,5-117,5 (111,5-119,5 max. 118,5 (max. 120,5)	100	14,9-15,5 mm RW	1150 500 1000 1070	12,0+0,1 12,5+0,1 12,4+0,2 12,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.84

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K24

K24

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 KHD 1 g 3

8. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 AOB 2168 L
AOC 2168 L

supersedes
company

4.84
KHD

BF 4 L 913

engine

66 kW/2300 min⁻¹
60 kW/2300 min⁻¹

Komb.-Nr. 0 400 864 054

Symbol S 29 = tractor DX 92 (1)

Symbol S 28 = tractor DX 86 (2)

BF 4 L 913 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,5-2,6} (2,45-2,65) mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1110	12,3+0,1	8,0-8,1	0,3(0,45)			
325	7,7-7,9	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.29	325	7,3	1110	12,3-12,4
	x= 4,0						100	min.19,5	500	13,1-13,2
							325	7,7-7,9	970	12,5-12,7
ca.53	11,3	1155-1165					670-730=2,0			
(2a)	4,0	1300-1330								
	1465	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full load stop		(6) Rotational speed limit		(3a) Fuel delivery characteristics		Starting fuel delivery (5)		(4a) Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to				Idle			
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5		6	7	8	9
(1) 1110	80,0-81,0 (78,0-83,0)	1155-1165*	700	79,5-81,5 (77,0-84,0)		100	100,0-110,0 (97,0-113,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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5.84

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.26	325	7,0	1150	10,5+0,1
	x =	4,0					100	min.19,0	500	11,2+0,1
ca. 56	9,6	1220-1230					325	7,4-7,6	900	10,9+0,3
	4,0	1325-1355					720-780	= 2,0		
②a	1475	0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
(2) 1150	74,5-75,5 (72,5-77,5)	1220-1230*		800	65,5-68,5 (63,5-70,5)	100	108,5-118,5	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 13,8 a

1. Edition

En

PE 12 A 90 D 521 RS 2648 RQV 325-1500 AB 1164 R

Komb.-Nr. 0 400 650 002

1- 4- 9- 8- 5 - 2 - 11- 10- 3 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

supersedes -

company: Baudouin
engine: DF 12 AN, S
308 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2, 15-2, 25) mm (from BDC)
(2, 10-2, 30)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1500	9,6-9,7	6,2-6,3	0,3(0,45)			
325	6,0-6,2	1,1-1,7	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 13	100	min. 7,5	300	0,9-1,0
ca. 46	8,6 4,0 1700	1540-1550 1595-1625 0-1,0					325	6,0-6,2	700	3,1-3,2
							355-415	=2,0	1100	5,1-5,2
							500	max. 1,0	1500	8,4

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) rev/min 1		Rotational speed limitation intermediate speed rev/min 3		Fuel delivery characteristics high idle speed rev/min 4		Starting fuel delivery idle switching point rev/min 6		Torque-control travel rev/min 8	
cm ³ /1000 strokes 2	cm ³ /1000 strokes 5	cm ³ /1000 strokes 3	cm ³ /1000 strokes 5	cm ³ /1000 strokes 5	cm ³ /1000 strokes 5	cm ³ /1000 strokes 7	cm ³ /1000 strokes 7	Control rod travel mm 9	Control rod travel mm 9
1500	61,5-62,5 (59,5-64,5)	1540-1550*	-	-	-	100	113,0-123,0 (110,0-126,0) =19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

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Testoil ISO 4113

L3

L3

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 4,4 a

3. Edition

En

PES 4 A 95 D 320 RS 2654

RSV 325-1050 A 2 B 2178 R
A 2 C 2178 R

Komb.-Nr. 0 400 874 236

supersedes 6.83
company Valmet
engine 411 DS 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6
(2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1050	9,4-9,5	7,7-7,9	0,35(0,6)			
325	4,9-5,1	1,2-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel mm	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	Control rod travel mm 11
loose	800 0,3-1,0 x= 5,0		-	-	-	ca. 25	325 4,5		1050	9,4-9,5
ca. 47	8,4 1090-1100						100 min. 19,5		500	10,4-10,5
2a	4,0 1140-1170						325 4,9-5,1		840	9,9-10,1
	1305 0,3-1,7						405-465=2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40 °C (104 °F)		6 Rotational speed limit Note changed to) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1050	77,0-79,0 (75,0-81,0)	1090-1100*	500	76,0-79,0 (73,5-81,5)	100	185,0-195,0 (182,0-198,0) =19,5-21,0 mm RW	325	5,0	
			750	82,5-84,5 (80,0-87,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.84

Test Oil ISO 4113

L4

L4

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 3,3 a

4. Edition

PES 3 A 95 D 320 RS 2655 RSV 325-1150 A 2 B 2178-1 R
A 2 C 2178-1 R

superseded by 6.83
company Valmet
engine 311 DS 6

Komb.-Nr. 0 400 873 032

1-2-3 je $120^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$
($2,45-2,65$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1150	9,4-9,5	7,8-8,0	0,35(0,6)			
325	4,9-5,1	1,0-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed rev/min 8			3 Torque control rev/min 10		Control rod travel mm 11
Control rod travel mm 2	Control rod travel mm rev/min 3					Control rod travel mm 9					
loose	800	0,3-1,0	-	-	-	ca.24	325	4,5	1150	9,4-9,5	
	x= 5,0						100	min.19,5	500	11,1-11,2	
							325	4,9-5,1	915	10,2-10,4	
							405-465	=2,0			
ca.50	8,4	1090-1200									
2a	4,0	1240-1270									
	1405	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8		Control rod travel mm 9
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7				
1150	78,0-80,0 (76,0-82,0)	1190-1200*	500	86,0-88,0 (83,5-90,5)		100	185,0-195,0 =19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.84

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 f 1

En 1. Edition

PES 6 A 80 D 410 RS 2663-1 RQV 300-1350 AB 1175 L

Komb.-Nr. 0 400 846 531

supersedes

companion

engine 8060.24.662

96 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,2-2,3 \\ (2,15-2,35) \end{matrix}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1350	12,5+0,1	7,0-7,1	0,25(0,35)			
300	5,9-6,1	1,1-1,7	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1400	15,2-17,8	-	-	-	ca. 10	100	min. 9,0	250	0,3-0,6
ca. 61	11,5 4,0	1390-1400 1520-1550				420-530	300 920	5,9-6,1 max. 1,0	550 1000 1550	3,0-3,4 5,5-5,8 10,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed limitation intermediate speed (2b) (4a)	Fuel delivery characteristics high idle speed (5b) (5a)		Starting fuel delivery idle switching point (6)	Torque-control travel (5) Control rod travel mm		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	9
LDA 1350	0,7 bar 69,5-70,5 (68,0-72,0)	1390-1400*	LDA 800	0,7 bar 63,0-65,0 (61,0-67,0)	100	110,0-130,0 (107,0-133,0) =15,7-16,3 mm RW	-	-
			LDA 500	0 bar 40,0-42,0 (38,0-44,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

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L6

L6

D. Adjustment Test for Manifold Pressure Compensator

FIA 5,5 f 1

- 2 -

Test at n = 1350 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2663-1 + RQV..AB1175L	0,70		12,5 - 12,6
		0,26	12,0 - 12,1
		0,21	11,0 - 11,2
		0	10,7 - 10,8

Notes

(1) when n

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

PES 4 M 55 C 320 RS 152 1
RSF 375/2300 M 55

Komb.Nr. 0 400 074 965/ Sales model 0 400 074 964

1- 3- 4 - 2
0-90-180-270

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

superseded 4.84
company Daimler-Benz
engine OM 601
53 kW
Europa

A. Fuel Injection Pump Settings

Note: Before starting testing, observe the important instructions on the reverse.

Port closing at prestroke 2,00-2,10 mm (from BDC) Control rod travel
(1,95-2,15) RW 20,0-22,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (compensating valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	12,1±0,1	3,1-3,2	0,25(0,3)			
375	6,4-6,6	0,5-0,6	0,10(0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in []

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel	Rotational speed	Degree of deflection of control lever	Control rod travel	Rotational speed		Rotational speed	Control rod travel
1	mm	rev/min	4	mm	rev/min	7	rev/min	mm
13-17	min. 12,5	250	50	11,3-11,5	2200		100	min. 20,6
(1)	6,4-6,6	375	(7)	8,8-9,2	2500		1800	11,8-12,0
(2)	**	400	(8)	-			1000	12,1-12,2
(3)	-		(9)	0-1,0	2950			
(4)	2,5	630-730	(10)					
(5)			(11)				(6) Switching point	

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery		Full-load speed regulation	Variations in fuel delivery		Starting fuel delivery Idle		Difference
Test oil temp 40°C (104°F)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8
2200	33,0-35,0 (32,0-36,0)	2500* 8,8-9,2	1800	34,0-35,5 (33,0-36,5)	100	min. 55	6,0 (12a)
			1000	31,0-32,0 (30,0-33,0)	375	5,0-6,0 (4,5-9,0)	1,0 (15)
					2500	22,0-26,0 (21,0-27,0)	2,5 siehe Pkt. 8 a (16)

Checking values in brackets

Caution: Control rod travel less than in Column 2

1. ** Set idle-auxiliary spring at $n = 400 \text{ min}^{-1}$ so that control-rod travel is extended by 0.1 - 0.2 mm.
2. Setting the idle control-lever position:
At 1000 min^{-1} , control-rod travel 1.9 - 2.0 mm.
3. Testing the idle-auxiliary spring cutoff
Control-lever position 46° . After switch-over point (from starting cam) up to 1000 min^{-1} no change of control-rod travel. Control-lever position 30° . Engine-speed range $500\text{-}700 \text{ min}^{-1}$, control-rod travel 9.7 mm.
4. Testing the pneumatic shutoff box
Control lever at idle stop.
At $n = 375 \text{ min}^{-1}$ and $p_u = 450 \text{ mbar}$ (vacuum) (338 mm Hg) control rod must move briskly to control-rod travel = 0 mm.
5. Overflow valve 1 469 990 351
6. * Start-of-delivery offset (difference) between largest/smallest value 1° cam angle.
7. Set idle at PLA box. Loosen lock nut.
8. Setting the pneumatic idle increase (PLA):
At 0.4 bar vacuum, $n = 425 \text{ min}^{-1}$, control-rod travel 8.0 - 9.6 mm (11-19 ccm/1000 lifts).
9. Leak test (vacuum test) on PLA box
Apply 0.8 bar vacuum to PLA box through three-way valve and pressure gauge. By means of three-way valve cut off vacuum supply to PLA and pressure gauge. Permissible pressure drop 30 mbar in 15 sec.
10. FBG setting
FBG setting and blocking in accordance with start-of-delivery average of all cylinders, 19.5 ± 0.2 (0.3) degree cam angle after cyl. 1.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 2,0 L 1

2. Edition

En

PES 4 M 55 C 320 RS 152-1
RSF 375/2250 M 55-1

Komb.Nr. 0 400 074 960 Sales model 0 400 074 959

1- 3- 4 - 2
0-90-180-270

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 4.84
company Daimler-Benz
engine OM 601
53 kW
Schweden

A. Fuel Injection Pump Settings

Note: Before starting testing, observe the important instructions on the reverse.

Port closing at prestroke 2,00-2,10 mm (from BDC)
(1,95-2,15) RW 20,0-22,0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	12,1+0,1	3,1-3,2	0,25(0,3)			
375	6,4-6,6	0,5-0,6	0,10(0,15)			
1800			0,25(0,3)			
2200			0,25(0,3)			

Set uniform delivery according to the values in []

Checking values in brackets

B. Governor Settings

Lower rated speed			Upper rated speed			Variations in control rod travel		
Degree of deflection of control lever	Control rod travel	Rotational speed	Degree of deflection of control lever	Control rod travel	Rotational speed		Rotational speed	Control rod travel
1	mm	rev/min	4	mm	rev/min	7	rev/min	mm
13-17	min. 12,5	250	50	11,3-11,5	2200		100	min. 20,6
(1)	6,4-6,6	375	(7)	8,8-9,2	2500		1800	11,8-12,0
(2)	**	400	(8)	-			1000	12,1-12,2
(3)	-		(9)	0-1,0	2950			
(4)	2,5	630-730	(10)					
(5)			(11)					
							(6) Switching point	

C. Settings for Fuel Injection Pump with Governor Mounted

Full load delivery		Full-load speed regulation		Variations in fuel delivery		Starting fuel delivery		Difference
Test oil temp 40°C (104°F)						Idle		
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	cm ³ /1000 strokes
1	2	3	4	5	6	7	8	
2200	33,0-35,0 (32,0-36,0)	2500*	1800	34,0-35,5 (33,0-36,5)	100	min. 55	6,0	(12a)
		8,8-9,2			375	5,0-6,0 (4,5-9,0)	1,0	(15)
			1000	31,0-32,0 (30,0-33,0)	2500	22,0-26,0 (21,0-27,0)	2,5	(16)
							(3,0) siehe Pkt. 8 a	

Checking values in brackets

ca. 1 mm less control rod travel than in Column 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz Ausrüstung
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1. ** Set idle-auxiliary spring at $n = 400 \text{ min}^{-1}$ so that control-rod travel is extended by 0.1 - 0.2 mm.
2. Setting the idle control-lever position:
At 1000 min^{-1} , control-rod travel 1.9 - 2.0 mm.
3. Testing the idle-auxiliary spring cutoff
Control-lever position 46° . After switch-over point (from starting cam) up to 1000 min^{-1} no change of control-rod travel. Control-lever position 30° . Engine-speed range $500\text{-}700 \text{ min}^{-1}$, control-rod travel 9.7 mm.
4. Testing the pneumatic shutoff box
Control lever at idle stop.
At $n = 375 \text{ min}^{-1}$ and $p_u = 450 \text{ mbar}$ (vacuum) (338 mm Hg) control rod must move briskly to control-rod travel = 0 mm.
5. Overflow valve 1 469 990 351
6. * Start-of-delivery offset (difference) between largest/smallest value 1° cam angle.
7. Set idle at PLA box. Loosen lock nut.
8. Setting the pneumatic idle increase (PLA):
At 0.4 bar vacuum, $n = 425 \text{ min}^{-1}$, control-rod travel 8.0 - 9.6 mm (11-19 ccm/1000 lifts).
9. Leak test (vacuum test) on PLA box
Apply 0.8 bar vacuum to PLA box through three-way valve and pressure gauge. By means of three-way valve cut off vacuum supply to PLA and pressure gauge. Permissible pressure drop 30 mbar in 15 sec.
10. FBG setting
FBG setting and blocking in accordance with start-of-delivery average of all cylinders, 19.5 ± 0.2 (0.3) degree cam angle after cyl. 1.

Test Specifications Fuel Injection Pumps and Governors

En

Testoil-ISO 4113

 PE 6 P 110 A 720 RS 15 RQ 250/1100 PA 111 DR
 Komb.-Nr. 0 401 846 194

 supersedes 3.82
 company Daimler-Benz
 engine OM 355
 154 kW (210 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $\overset{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1090	12,0±0,1	10,0 - 10,2	0,3 (0,6)			
250	7,9-8,1	1,7 - 2,3	0,3 (0,5)			

 Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,5-16,5	600	16,0	11,0 4,0 1300	1135-1150 1210-1240 0 - 1,0	250	6,0	100 250 385-425 = 2,0	mind. 7,0 5,9-6,1	1090 700 450	12,0-12,1 12,3-12,4 12,6-12,7

 Torque control travel on flyweight assembly dimension a mm Speed regulation $\overset{1135 - 1150 \text{ min}^{-1}}{\text{Al}}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /100 strokes
1	2	3	4	5	6	7
1090	100,0 - 102,0 (98,0 - 104,0)		700 450	96,0 - 99,0 (94,0 - 101,0) 90,0 - 94,0 (88,0 - 96,0)	100	150,0-170,0 (146,0-174,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 a

1. Edition

En

PE 8 P 100/620/4 LS 48 RSUV 250-800 P 10/302 R
Komb.-Nr. 0 401 878 021, 0 401 878 024
1-4-7-6-8-5-2-3 je 45 ° ± 0,5° (± 0,75°)

supersedes -
company KHD
engine F 8 M 716

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 67	800	16,0	without auxiliary spring			ca. 30	250	6,0	780	0
	840	10,9					50	19-21	350	0
	880	4,5					250	5,7-6,3	280	1,2-1,8
	850	7,7-10,5	with auxiliary spring				300	2,0-4,0		
	880	3,0-6,5					370	0-1,0		
2a	950	0 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to 1 rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
Take	from VDT-I-401/103					-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

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L13

L13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 a 1

1. Edition

En

PE 8 P 100/620/5 LS 48 RSUV 250-800 P 10/302 R
Komb.-Nr. 0 401 878 027

1-4-7-6-8-5-2-3 je 45 ° ± 0,5° (± 0,75°)

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company KHD

engine F 8 M 716

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.67	800 840 880	16,0 10,9 4,5	without auxiliary spring			ca.30	250 50 250 300 370	6,0 19-21 5,7-6,3 2,0-4,0 0-1,0	780 350 280	0 0 1,2-1,8
2a	850 880 950	7,7-10,5 3,0-6,5 0 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
Take	from VDT-I-401/103				-	-	-		

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.84

Test ISO 4113

L14

L14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 b

1. Edition

En

PE 8 P 100/620/4 LS 48 RSUV 300-1000 P 77/304 R
Komb.-Nr. 0 401 878 022, 0 401 878 023, 0 401 878 031
1-4-7-6-8-5-2-3 je 45 ° ± 0,5° (± 0,75°)

supersedes -
company KHD
engine F 8 M 716

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,0-2,1}{(1,95-2,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min mm 10 11	
ca. 68	Control rod travel mm	Control rod travel mm rev/min	without auxiliary spring			ca. 28	300	6,0	980	0
	1000	16,0					100	19-21	400	0
	1050	9,0					300	5,7-6,3	290	1,2-1,8
	1070	5,0					350	1,2-4,5		
2a	1050	5,0-10,2	with auxiliary spring				450	0-1,0		
	1100	1,6-3,8								
	1150	0 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40 °C (104 °F) rev/min 1		6 Rotational speed limit Note changed to 1 rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8		4a Control rod travel mm 9	
cm ³ /1000 strokes 2		cm ³ /1000 strokes 3		cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		cm ³ /1000 strokes 8		mm 9	
Take from VDT-I-401/103						-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.84

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Test ISO 4113

L15

L15

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 b 1

1. Edition

En

PE 8 P 100/620/5 LS 48 RSUV 300-1000 P 7/304 R

Komb.-Nr. 0 401 878 028

1-4-7-6-8-5-2-3 je 45° ± 0,5° (± 0,75°)

supersedes

company KHD

engine F 8 M 716

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.68	1000 16,0 1050 9,0 1070 5,0		without auxiliary spring			ca.28	300 6,0		980 0	
2a	1050 5,0-10,2		with auxiliary spring				100 19-21		400 0	
	1100 1,6-3,8						300 5,7-6,8		290 1,2-1,8	
	1150 0 - 1,0						350 1,2-4,5			
							450 0-1,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min		Note changed to 1 rev/min		Idle		Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	rev/min 9	Control rod travel mm 9
Take	From VDT-I-401/ 103					-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

L16

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L16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 b2

1. Edition

En

PE8P100 A 620/4 LS 48 RSV 250-1000 P7/304 R
Komb.-Nr. 0 401 878 044
1-4-7-6-8-5-2-3 je 45° ±0,5° (±0,75°)

supersedes -
company KHD
engine F8M716

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 68	1000 1050 1080	16,0 9,0 4,0	without auxiliary spring			ca. 28	300	6,0	980	0
2a	1050 1100 1180	7,0-10,0 1,5-3,8 0 - 1,0					100 300 350 450	19-21 5,7-6,3 3,2-4,5 0 - 1,0	450 340	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
Take	from VDT-I-401/103					-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

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Testoil-ISO 4113

L17

L17

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 c1

1. Edition

En

PE8P 100/620/4 LS 48 RSUV 250-800 P10/318 R
Komb.-Nr. G 401 878 032
1-4-7-6-8-5-2-3 je 45° $\pm 0,50$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine F8M716

Note VDT-I-401/103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 67	800 840 870	16,0 10,8 6,0	without auxiliary spring			ca. 30	250 50 250 280 360	6,0 19-21 5,8-6,2 3,8-4,8 0 - 1,0	780 350 280	0 0 1,2-1,8
2a	860 890 940	6,0-9,2 2,0-5,0 0 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp 40°C (104 °F)		Note changed to 1 rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	4	5	6	7	8	9	Control rod travel mm 9
Take	from VDT-I-401/103					-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

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L18

L18

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 c

1. Edition

En

PE8P 100/620/5 LS 48 RSUV 250-800 P10/318 R
Komb.-Nr. 0 401 878 030
1 - 4 - 7 - 6 - 8 - 5 - 2 - 3 je 45° ^{+0,5°} (^{+0,75°})

supersedes -
company KHD
engine F8M 716

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control lever deflection in degrees rev/min 7 8 9			3 Torque control Control rod travel rev/min mm 10 11	
ca. 67	Control rod travel mm	Control rod travel mm rev/min	without auxiliary spring			ca. 30	250	6,0	780	0
	800	16,0					50	19-21	350	0
	840	10,8					250	5,8-6,2	280	1,2-1,8
2a	870	6,0	with auxiliary spring				280	3,8-4,8		
	860	6,0-9,2					360	0 - 1,0		
	890	2,0-5,0								
	940	0 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop Control rod travel mm 8 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7			
Take	from VDT-I-401/103					-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 c2
1. Edition

En

PE8P 100 A 620/4 LS 4E RSUV 250-800 P10/318 R
Komb.-Nr. 0 401 878 045
1-4-7-6-8-5-2-3 je 45° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -
company KHD
engine F8M716

Note VDT-I-401/103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1
Port closing at prestroke (1,95-2,15) mm (from BDC)

Test ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 67	800 840 870	16,0 10,8 6,0	without auxiliary spring			ca. 30	250 50 250 280 360	6,0 19-21 5,8-6,2 3,8-4,8 0 - 1,0	780 350 280	0 0 1,2-1,8
2a	860 890 940	6,0-9,2 2,0-5,0 0 - 1,0								
			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Take	from VDT-I-401/103					-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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L20

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 c3
1. Edition

En

PE8P 100 A 620/4 LS 48 RSUV 250-800 P10A318 R
Komb.-Nr. 0 401 878 067
1-4-7-6-8-5-2-3 je 45° ±0,5° (±75°)

supersedes KHD
company F8M71E
engine

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600	9,0	5,4-6,4				
600	12,0	11,4-12,7				
600	15,0	17,5-18,8				
200	9,0	3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.67	800 840 870	16,0 10,8 6,0	without auxiliary spring			ca.30	250	6,0	780	0
2a	860 890 940	6,0-9,2 2,0-5,0 0 - 1,0				with auxiliary spring	50 250 280 360	19-21 5,8-6,2 3,8-4,8 0 - 1,0	350 280	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Take from VDT-I-401/103						-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 h

1. Edition

En

PE8P110 A 620/4 LS 48 RSUV 250-800P10/318 R

1-4-7-6-8-5-2-3 ie 45° ±0,5° (±0,75°)

Values only apply to test nozzle-and-holder
assembly 0 681 443 022 and fuel-injection test
tubing 1 680 750 060

Note VDT-1-401/103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

KHD

company

BF 8 M 716

engine

Komb.-Nr. 0 401 878066

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1000	12,0	18,8-19,6	0,8			
600	6,0	3,4-4,4				
600	12,0	18,2-19,5				
600	15,0	26,7-28,4				
200	6,0	0,9-1,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 67	800	16,0	without auxiliary spring			ca. 30	250	6,0	780	0
	840	10,8					50	19-21	350	0
	870	6,0					250	5,8-6,2	280	1,2-1,8
2a	860	6,9-9,2	with auxiliary spring				280	3,8-4,8		
	890	3,0-5,0					360	0 - 1,0		
	940	0 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to 1 rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
Take	from VDT-1-401/103					-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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L22

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 18,3 h 1
1. Edition

En

PE8P 110 A 620/4 LS 48 RSUV 250-800 P10 A 318 R
1-4-7-6-8-5-2-3 ie 45° ±0.5° (±0.75°)
Values only apply to test nozzle-and-holder
assembly 0 681 443 022 and fuel-injection test
tubing 1 680 750 060

Note VDT-I-401/103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

KHD

company

BF8M716

KomB-Nr. 0 401 878 068

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12,0	18,8-19,6	0,8			
600	6,0	3,4-4,4				
600	12,0	18,2-19,5				
600	15,0	26,7-28,4				
200	6,0	0,9-1,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 67	800	16,0	without auxiliary spring			ca. 30	250	6,0	200	0
	840	10,8					50	19-21	350	0
	870	6,0					250	5,8-6,2	280	1,2-1,8
			with auxiliary spring				280	3,8-4,8		
2a	860	6,9-9,2					360	0 - 1,0		
	890	2,0-5,0								
	940	0 - 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40 C (104 F)		Note changed to rev/min							
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9	
1	2								
Take	from VDT-I-401/103								

Checking values in brackets

* 1 mm less control rod travel than col. 2

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